



# College AND UNIVERSITY Business

SEPTEMBER 1949: Economical Use of Land and Buildings • Survey of Insurance Coverage • Cutting Fuel Consumption • New Buildings for Student Living, Dining and Study • College Audio-Visual Center



## IS "BRICK AND MORTAR" OUR GREATEST WEAKNESS?

**HARRY L. WELLS**

Vice President and Business Manager  
Northwestern University

A RECENT STUDY OF STANDARDS OF LAND AREA and building space for the Evanston campus of Northwestern University has shown that few standards exist that can be applied to colleges and universities in general. Even those that we have evolved apply to Northwestern University alone and can be used only as a guide for other institutions. No claim is made that we have exhausted the subject, although we have expended a tremendous amount of time and energy on it.

After comparing our data with information furnished by other institutions, we have found that our experience compares favorably with that of other schools. We have reached the conclusion that the time has come for the educational world—particularly in its higher brackets—to reappraise its own thinking, practices and traditions. This is especially important in view of the governmental pressure to increase the educational facilities of the country.

It is obvious that higher learning has lived in a sacrosanct atmosphere that has never prompted the self-analysis that institutions in our competitive system have been forced to face. To disclose this from a purely dollar and cents basis is to subject our discussion to endless criticism. If out of such criticism comes an honest facing of the educational problem, we will have made a contribution to higher learning.

So forcefully do the facts speak that we proclaim that the program, as outlined by the President's Commission, can be absorbed to a very great degree in the present facilities of the country if educators will face the issue open-mindedly and critically. Particularly is this true if the high school and college authorities will adjust their programs to permit extension of community junior colleges as an addition to the high school field. When a certain high school can operate, with its present equipment, a community junior college of 600 to 1000 students, it is easy to project the increased educational capacity if hundreds of high schools would follow this example.

Our conclusions fit into a much larger program that must be launched against the wastes existing in institutions organized for public good. Governmental, charitable and educational activities represent a national "overhead expense" that is reaching the breaking point. An appraisal of the cost of these services discloses that we must quickly and effectively analyze our public services and learn how to furnish them for a greatly reduced expenditure. The opportunity lies at our finger tips, and regardless of the criticism that will fall upon this presentation and the warranted claims that we have oversimplified the problem, this portion of the discussion has but one goal—to center the thinking of the educational world on a system that is prone to become self-satisfied.

School and departmental kingdoms have become entrenched and inflexible. Seniority rights to research and teaching assignments have led to wasteful utilization of manpower, space and time. Trustees and business administrations have been timid in applying measuring sticks to educational problems and methods. Since the heavy hand of government concerns everyone, we must not fail to recognize that our first lesson must be learned in our own educational institutions for they, too, represent public trusts and should furnish the training and example which alone will carry over into a solution of the larger problem.

We are cognizant of the great need for additional funds to support education. It is clear, however, that "brick and mortar" is our greatest weakness. What is tangible and visible has appealed to donors and legislatures more strongly than has the strengthening of teaching, research and those activities that deal intimately with the students' needs and guidance. In a day when the national government is so glaringly overbuilt and overorganized; when businessmen and educators are critical of the financial load government is placing upon the citizens, we must scrutinize our own problems and make sure that the "pot is not calling the kettle black."

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PUBLISHING AND  
EDITORIAL OFFICES  
919 N. MICHIGAN AVE.  
CHICAGO 11, ILL.  
SU perior 7-6402

EASTERN OFFICE  
101 PARK AVE.  
NEW YORK 17, N.Y.  
MUrray Hill 3-2445

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## Among the Authors

HARRY L. WELLS, vice president and business manager of Northwestern University, presents on page 4 a businessman's point of view regarding the development of standards for building and land use on the Evanston campus of the university. The business approach is no accident; Mr. Wells was successively a manufacturing executive of B. Kuppenheimer & Co., operating executive of Hart, Schaffner & Marx, and vice president of Bauer & Black. He also was assistant and acting chief of the uniform division of the U.S. Army in 1918. He became business manager of Northwestern University in 1934 and vice president and business manager in 1937.



HARRY L. WELLS

KATHRYN G. HANSEN, personnel officer and instructor in psychology at the University of Illinois, tells on page 12 of the program for academic credit that is offered to nonacademic staff members of the university. She is also editor of the *Illini Worker*, employe publication, which is distributed to all of the university staff. Her hobby: collecting "old" books on the history and development of printing. . . .

GROVENOR C. RUST, director of audio-visual instruction for Wheaton College in Illinois, explains on page 31 the operations of a centralized audio-visual aids program. Previous to his appointment to the Wheaton staff, Mr. Rust worked in the customer relations office of Sears, Roebuck and Company in Miami, Fla. As might be expected, his hobby is photography, though he admits a special fondness for youngsters and a black cocker spaniel.



KATHRYN G. HANSEN

JOHN F. WHITE, dean in charge of development at Illinois Institute of Technology, describes on page 15 the work that was done at Illinois Tech in developing a medical reimbursement program for students. At the time the program was initiated, he was dean of students; only 28, he was the youngest dean in any major educational institution in the country. In his present position Dean White is concerned with the \$15,000,000 building program of his institution. . . . VIVIAN A. READING, director of food service at Northwestern University's Abbott Hall, is convinced that every plate of food can be as attractive as a bouquet of flowers. On page 26 she tells how she does it. She was formerly food director of Bowen High School in Chicago. A redhead Irish gal, she has the traditional Irish wit in full measure.



JOHN F. WHITE

DR. THOMAS E. BLACKWELL, treasurer and secretary of the board of directors of Washington University, St. Louis, discusses on page 37 the tax exemption feature of nonprofit educational institutions; this is the third article of his series on legal problems facing colleges and universities. He received his doctor's degree in law (J.D.) in 1938 from the school of law of Washington University. His doctoral thesis, "The Charitable Corporation and the Charitable Trust," was published by the American Council on Education.

# **Looking Forward**

## **Cardinal, Congressman and Mrs. F. D. R.**

WITHIN RECENT WEEKS A CONTROVERSY BETWEEN prominent Americans on their philosophy of federal aid to education points up some of the inherent dangers of federal financing in this field.

Francis Cardinal Spellman of New York fired the first salvo at Fordham University when he charged Congressman Graham A. Barden (D.-N.C.) with being a "new apostle of bigotry" for sponsoring a bill in Congress which would provide funds for public schools but which would not permit tax monies to be allocated to parochial schools. Congressman Barden was adhering to the traditional American concept which calls for strict separation of church and state. The U.S. Supreme Court, on Feb. 10, 1947, rendered a decision which was explicit on this issue. "No tax in any amount, large or small, can be levied to support any religious activities or organizations, whatever they may be called, or whatever form they may adopt to teach or practice religion."

Four days after Cardinal Spellman's speech at Fordham, Mrs. Franklin D. Roosevelt in her newspaper column, "My Day," stated that the distribution of federal funds to private schools would violate the traditional separation of church and state and would "be harmful to our whole attitude of tolerance in the religious area." She reiterated that her opposition to public support of private schools was based neither on prejudice nor on anti-Catholic bias, but on democratic principle.

This was too much for His Eminence to take. Cardinal Spellman directed a letter to Mrs. Roosevelt in which he caustically rebuked her, charging that "Your record of anti-Catholicism stands for all to see—a record which you yourself wrote on the pages of history which can not be recalled—documents of discrimination unworthy of an American mother!"

Former Governor Herbert H. Lehman of New York voiced the protest of many when he retorted that "The issue is whether Americans are entitled freely to express their views on public questions without being vilified or accused of religious bias." Congressman Barden stated: "The lady's reputation for tolerance needs no defense at my hands."

Commenting on his bill, which touched off the fireworks, Congressman Barden stated: "I can compromise words, figures, phrases, even money, but on the principle of federal tax money going to private schools I don't believe the government, the Supreme Court or myself can compromise. If you leave it open for supporting any private schools, you leave it open to supporting any school that exists or that may be organized—by anybody from the Communists on up."

And that pretty well sums up the situation. Either a privately supported college adheres to its traditional concept of financial support and maintains its independence—or it becomes tax supported. It's specious thinking to argue that this issue can be compromised. The Cardinal would have shown greater wisdom and stature had he not confused the fundamental issue of federal aid to education with his diatribe on religious bias and public schools.

## **It Happens Every Fall**

SHORTLY AFTER THE LABOR DAY HOLIDAY THE annual trek to the halls of learning begins throughout the land. It is a challenge to every college administrator. It is to be hoped that during the last year administrative leadership profited from experience and that a continual "why?" attitude may have developed.

*Why* should we conduct our registration procedures as we have in the past? *Why* must we operate our food service as we did last year? *Why* do we follow the same technics in the maintenance of buildings?

These questions are merely illustrative of the curiosity that should be exhibited by every administrator as he performs his daily tasks. He should continually ask himself, "Is there a better way to handle the problems that confront me?"

Someone has said that "experience is the greatest teacher." Let's hope it is when it comes to avoiding the repetition of previous mistakes. However, anticipation of administrative problems and intelligent appraisal of them are more indicative of genuine professional growth.

Yes, the students return to the campus every fall, but let's hope they don't find administrators doing their jobs in the same old way.

## **Northwestern University establishes**

**standards for economical**

# **USE OF SPACE**

**FEW STANDARDS OF LAND AREA AND**  
building space exist that can be applied to colleges and universities in general. At Northwestern University, we have made a study of standards for the development of the buildings and grounds of the Evanston campus, on which I have commented in the guest editorial in this issue (op. page 1).

Universities have a community obligation to be reasonable in their demands for tax free space and in their encroachment upon adjoining property. We at Northwestern have found that whereas the educational administration has designated that a 7500 student enrollment is the ideal size for our Evanston campus, the university possesses sufficient campus ground in Evanston for an enrollment of 10,000.

It is obvious that much of our planning has been projected without guides to direct us. The study also makes it clear that to be efficient we must have courage to replace obsolete buildings with new ones of modern design and layout. Certain old buildings occupy sufficient land to provide for several times their present capacity if our proposed standards were followed. These buildings can be replaced over a period of years out of their own excessive maintenance costs.

We have based our research upon certain assumptions that seem to be reasonable and conservative. First, it is reasonable to expect that our buildings and each classroom therein can be used eight hours each day for a five-day week; certain space can be used for longer periods. The facts resting upon this assumption show that the efficiency of use of classrooms is only 53 per cent, and of laboratories 36 per cent. In other words, we find ourselves with adequate space for almost any program we care to project if we

From a paper presented before the joint meeting of the Western and Central Associations of College and University Business Officers, Denver, 1949.

**HARRY L. WELLS**

Vice President and Business Manager  
Northwestern University

can devise ways to utilize the space more effectively.

A completely different approach to the problem is shown where we have used what has been called the "student station hour," or the space occupied by one student for one hour. On this basis the classrooms are but 29 per cent occupied, and the laboratories 26

**Table 1—Summary of Space Standards**  
**Evanston Campus**  
**Northwestern University**

Land Area Standards			
Campus Area Unit	Quadrangle		
	Sq. Ft.	per	Student
Housing Area Standard	98		
Educational Area Standard	149		
Parking Area Standard (also 281 square feet per unit parked)	75		
Recreational Area Standard	82		
Total Campus Area Standard	404		
Athletic Area Standard per Institution	35 acres		
Building Space Standards			
Land Utilization	$\frac{1}{3}$ covered; $\frac{2}{3}$ open 4 stories high		
Buildings	Sq. Ft.	Sq. Ft.	Gross
	Area per	Area per	Occupant
Housing Standard	131	280	
Educational Standards:			
Classrooms	35	24	
Laboratories and Shops	30		203
Offices	25		
Research	15		
Libraries	15		
Food Services	20		
Gymnasiums	25		
Auditoriums	10	14	
Student Center	10		
Infirmaries	1		
Service and Maintenance	12		
Miscellaneous	1	199	
Total	330		

per cent. Thus, on a calculated potential our space is used between a fourth and a third of a 40 hour week. This is a use of donors' money that should give us concern and points to the excessive costs to the university for maintaining space so infrequently used. The facts reveal the need for changes in future building plans, particularly in the utilization of land areas and the flexibility of building space areas.

In recent years there has been a trend away from the classroom method of instruction. In many institutions presence at lectures is not compulsory if the student cares to do his work elsewhere and to take the examinations with his class. Some sample checks were made of a number of the larger classes in which attendance records are not kept. The results indicate that if we apply to our study a test of attendance at lectures, the efficiency of the use of classrooms is reduced to a surprisingly low percentage. This is sufficiently important to raise questions as to the effectiveness of the lecture system for all courses and as to the possibility of the broader application of the principle of self-study. Since such a trend will affect materially the space requirements of an institution, we have included this cursory spot check in order to point out an influence that may materially change our standards.

While we have included the data on efficiency of classroom use to focus thinking on the possibilities of savings that exist in the operation of our colleges and universities, this information did not enter into the standards that were set. A more efficient use of areas will make our proposed standards entirely too liberal.

We checked our facts against Dr. Ernest V. Hollis' report on the building needs of 1386 institutions of higher learning and discovered that the situation is national in scope. It is evident that the time has come for an account-

ing of the stewardship of state and donors' funds in college and university programs.

#### LAND AREA STANDARDS

For effective utilization of the land, the campus has been divided into geographical sections or quadrangles that fall into the following classifications: (1) housing quadrangles in which there are one or more buildings occupied by fraternities, sororities or open dormitories; (2) educational building quadrangles in which there are one or more buildings occupied by schools or departments, usually with allied interests; (3) parking quadrangles which are devoted to the parking of student and staff cars; (4) recreational quadrangles in which there are no buildings or parking and which are entirely devoted to landscaped open space used generally as play fields, and (5) an intercollegiate athletic quadrangle which is devoted entirely to intercollegiate outdoor sports.

#### HOUSING QUADRANGLE STANDARD

In 1946 a survey, made by the university's architects of the land use of the women's quadrangles, showed that in the west quadrangle 41 per cent of the land was covered by buildings, and in the east quadrangle 35 per cent. At that time this survey was discussed with the educational properties committee of the board of trustees, and the committee felt that the west quadrangle was too crowded but that the east quadrangle had a much more de-

**TABLE 3—COMPARISON OF STANDARDS PER FULL-TIME STUDENT, NORTHWESTERN AND HOLLIS REPORT**

	SQ. FT. GROSS AREA PER FULL-TIME STUDENT				
	HOLLIS REPORT*		NORTHWESTERN STUDY		
	1947	Desired	8300 Enrollment	7500 Enrollment	Proposed
Classrooms	30	41	27.22	30.13	35
Laboratories and Shops	24	38	30.25	33.46	30
Offices	11	14	25.64	28.40	25
Research			8.77	9.71	15
Libraries	10	14	12.41	13.73	15
Food Services	7	9	9.37	10.37	20
Gymnasiums	14	22	10.31	11.41	25
Auditoriums	6	9	5.50	6.09	10
Student Center	4	9	4.23	4.68	10
Infirmaries	4	6	.72	.80	1
Service and Maintenance	7	9	5.06	5.60	12
Miscellaneous	9	11	.33	.37	1
	126	182	139.81	154.75	199
Housing Standard	67	100	56.45	62.48	131
					330

\* Building census made by Dr. Ernest V. Hollis, chief, Veterans Educational Facilities Program Division of Higher Education, and Associates in 1947 from data received from 1386 colleges in the United States, Higher Education (May 15, 1948).

sirable ground utilization. As a result of this discussion and a study of the present and proposed buildings in relation to the land area of their quadrangles, a standard for land coverage was established at 33 per cent of the total area of each housing quadrangle. Using our goal of 7500 full-time students and applying the building space standard, we find that each student requires a housing land area of 98 square feet. (Part-time students are not a factor on the Evanston campus.)

#### EDUCATIONAL STANDARD

From the standpoint of land use the Technological Institute, which covers 27.5 per cent of the quadrangle area, is the most efficient. Two new wings are planned to the east of this building and, when completed, will raise the efficiency of use of the quadrangle to 30.7 per cent. When the open recreational quadrangle factor is given due weight the relation of educational buildings to land areas indicates that standards of 33 per cent coverage and 149 square feet per student are adequate and liberal.

#### PARKING QUADRANGLE STANDARD

Present parking lots vary in size and shape. Those that make the most pleasing appearance are surrounded by a screening of bushes that occupy about 12 per cent of the total land area. We propose that not more than 88 per cent of each parking quadrangle be used for cars and driveways, and that the space within the bushes be covered with a hard surface material for cleanliness and minimum maintenance. A study was made of underground and multiple deck parking structures, but the economic features of original cost and operating expense more than offset the favorable aspects. It was decided to limit, at least for the present, our parking facilities to off the street lots, preferably on land that is held for future expansion. The standard for parking space,

**TABLE 2—SURVEY OF CLASSROOM AND LABORATORY USE  
EVANSTON CAMPUS**

BUILDING	CLASSROOMS			LABORATORIES		
	Possible Class Hours	Actual Class Hours	% of Use	Possible Lab. Hours	Actual Lab. Hours	% of Use
Coast Guard	40	20	50.00	40	6	15.00
Commerce	520	390	75.00	40	28	70.00
Deering	200	71	35.50			
Education	120	71	59.16	40	3	7.50
Fayerweather	320	149	46.56	320	126	39.37
Fisk	600	342	57.00	240	81	33.75
Harris	680	433	63.67			
Locy	240	134	55.83	240	104	43.33
Lunt & Annex	400	241	60.25	40	2	5.00
Minerology	40	15	37.50	120	15	12.50
Music Buildings (excluding practice rooms)	340	177	52.05	120	23	19.17
Observatory	40	8	20.00	13	2	15.38
Speech Buildings	440	239	54.31	160	36	22.50
Swift	280	111	39.60			
Tech Institute	1880	833	44.30	880	351	39.88
University Hall	440	255	57.95	160	81	50.63
Total	6580	3489	53.02	2413	858	35.58

based upon each student enrolled, is 75 square feet. This allows 281 square feet for each faculty and student car, assuming our present experience and projecting commuter enrollment in the same ratio to total students as now prevails.

#### RECREATIONAL STANDARD

In addition to developed play spaces, such as tennis courts, occasional large open areas are needed for esthetic and recreational purposes. We now have one such space at the north end of the campus and one in the center, and their intensive use would indicate the need for a recreational quadrangle at the south end. From the point of view of the city at large, attractive open spaces linking the campus and the town are highly desirable as they provide a transition both attractive and useful. This allocates for recreational use 17 per cent of our campus land, or 82 square feet of space for each full-time student. We believe that while this standard is based upon our own experience, it will prove to be valuable for comparisons with those of other institutions.

The entire area provided for inter-collegiate athletics is treated as a unit. Since a given sport requires a stated area, the size of the student enrollment does not determine the standard. We have eliminated from this definition

the play fields used for the general student body and for the intramural activities.

To carry on the generally accepted intercollegiate athletic program requires a minimum area of 35 acres. This standard was set from our experience with the present intercollegiate program and includes not only the stadium, but space for an adequate field house, practice fields for the various sports, and parking facilities for a portion of the large crowds attracted by intercollegiate competition. While not essential, it is desirable to have facilities for golf, not only for intercollegiate competition but for general recreational purposes. Since such facilities require approximately 100 acres per 18 hole course they must be located some distance from the campus proper and, therefore, have not been included in this survey.

After establishing these standards we discovered that we possess on our present Evanston campus one-third more land than is required for our projected program.

#### BUILDING SPACE STANDARDS

In order to establish specific standards for university buildings we related them to the total enrollment of full-time students. Complying with the present zoning laws and city building requirements of Evanston, we have

set our building standard as a three-story and basement structure. This type of building has proved efficient and is about the limit wherein there is no need for passenger elevators. On the standard of a 33 per cent coverage of land, the building will provide 4 square feet of building area for each square foot of ground area covered.

#### STUDENT HOUSING SPACE

In setting the standard for student housing we analyzed our present housing in its overcrowded condition, the original designed capacity, the standards suggested by Dr. E. V. Hollis in his study of the building needs of colleges and universities, and also our own housing arrangement based on a standard student room of our own design that was approved in 1945 for our proposed residence halls. Using the square foot area per student housed and analyzing the number of students to be housed, we established a standard of 131 square feet gross area per full-time student.

Our position on housing is quite different from that at many schools, since fraternities and sororities are nearly all located on university land and are considered a part of university housing. Also, the percentage of commuting students is large. For this reason we have set a second standard of 280 square feet gross area per student housed, which will be more valuable in application and for comparison with other institutions.

#### STUDENT EDUCATIONAL SPACE

The standard of 199 square feet gross area per student is the sum of the standards determined for the following types of space required to serve the students.

**Classrooms:** In setting a standard for classrooms we determined the present square foot gross area of all space utilized for this purpose and divided it first by our maximum enrollment of 8300 full-time students, and then by our ideal enrollment of 7500. We found that in the first instance the present average area per full-time student is 27 square feet, and in the second instance 30 square feet gross area. We then compared these figures with the results of the Hollis questionnaire which showed that 1386 institutions at the present time average 30 square feet gross area per student and indicated a desire to increase this to 41 square feet. Recognizing that nationally the efficiency of use of classrooms

TABLE 4—APPLICATION OF SPACE STANDARDS  
EVANSTON CAMPUS

Land Area Standards		
	SQ. FT. FOR STUDENT BODY OF 1000	SQ. FT. FOR STUDENT BODY OF 7500
Housing Area Standard	98,000	735,000
Educational Area Standard	149,000	1,117,500
Parking Area Standard	75,000	562,500
Recreational Area Standard	82,000	615,000
Total	404,000	3,030,000
Building Space Standards		
Housing Standard	131,000	982,500
Educational Standards		
Classrooms	35,000	262,500
Laboratories and Shops	30,000	225,000
Offices	25,000	187,500
Research	15,000	112,500
Libraries	15,000	112,500
Food Services	20,000	150,000
Gymnasiums	25,000	187,500
Auditoriums	10,000	75,000
Student Center	10,000	75,000
Infirmaries	1,000	7,500
Service and Maintenance	12,000	90,000
Miscellaneous	1,000	7,500
	199,000	1,492,500

is low, we have set a standard of 35 square feet gross area per full-time student as adequate for classroom space under present conditions.

**Laboratories and Shops:** We arrived at the present average space used per full-time student in laboratories in exactly the same way as the classroom average was determined. On the basis of 8300 students the average square foot gross area per student in laboratories is 30 square feet; on the basis of 7500 students, 33 square feet. These compare with corresponding figures in the Hollis report of 24 and 38. A standard of 30 square feet gross area per full-time student was adopted for our purposes. This standard cannot be used except for the over-all picture because the requirements of different types of laboratories vary so greatly that they cannot be incorporated in a single standard.

**Offices:** The standard for office space was determined by averaging the present occupancy and area of offices in the Technological Institute. This is our most modern educational building and represents a thorough study of office requirements. This standard was then multiplied by the number of faculty and staff members employed on the Evanston campus. We then divided the area so determined by 7500 full-time students to arrive at a figure of 25 square feet gross area per full-time student. A second standard was determined for office space because a more nearly accurate and usable measurement is found when the space is related to each individual faculty or staff member accommodated. On this basis 203 square feet gross area per occupant was set.

**Research:** The standard of 15 square feet gross area per full-time student was established on the basis of present experience and the ever increasing demand on the part of the faculty for more space of this type. This space is included in the laboratory classification.

**Libraries:** The standard of 15 square feet gross area per full-time student was set by comparing our present space of 12 square feet with a corresponding figure in the Hollis report of 10 square feet. It is our opinion that library space is inadequate, and that a standard of 15 square feet gross area per full-time student is a more realistic figure.

**Food Services:** The standard of 20 square feet gross area per full-time

## Conclusions of Northwestern Survey

1. Classroom buildings must be made as flexible as possible, and the principle of movable walls may be a possibility for universities.

2. We must not be afraid to tear down obsolete buildings which, because of their design and layout, are wasteful in maintenance expense and are utilizing space that can be made to carry a much heavier load under our proposed standards.

3. The proportion between commuting and out-of-town students for a university, located as is Northwestern, must be fairly evenly balanced over the years. The shifting load for housing and parking is almost impossible to handle if the variation between the commuters and out-of-town students changes radically from year to year.

4. Much can be done to utilize classrooms more effectively, and this is the quickest way to get relief in a situation that seems cramped only because our traditional patterns of use are wasteful. It has been demonstrated

many times across the country that classrooms can be used from 8 a.m. until 10 p.m. if required, and, therefore, our eight-hour suggestion represents a conservative goal.

5. Anything that can be done in the direction of uniformity of class size will materially aid the planning of space utilization.

6. Our standard residence hall room, developed painstakingly over a period of years, points out the need for additional standards for classrooms, offices, laboratories and many of the other components of the successful campus. There are many details to be carefully studied in each of these standards. For instance, in good classroom lighting foot-candles of intensity, percentages of contrasting color areas, color and reflective quality of the blackboards, and seating arrangement are all important. These standards must be worked out scientifically and by many investigations if usable detailed standards are to be developed.

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student was set after a review of our present experience and the plans that have been worked upon for several years for a new commons building. This standard compares with 9 square feet in the Hollis report and represents Northwestern's practice of including the dining spaces in fraternities, sororities and all commons buildings as part of the dining facilities. This probably makes a comparison with other institutions impossible.

**Gymnasiums:** The standard for gymnasiums of 25 square feet gross area per full-time student was set after comparing our present inadequate area of 10 square feet gross area per student with a corresponding standard of 14 for Hollis.

**Auditoriums:** In setting the standard of 10 square feet gross area per full-time student we took into consideration our present average of 6 square feet as compared to the Hollis averages of 6 square feet at present and 9 square feet desired.

**Student Center:** We have been under increasing pressure from students for added facilities for student activities. After comparing our present gross area of 4 square feet per

full-time student with the Hollis averages of 4 square feet at present and 9 square feet desired, and considering the need to bring into one building various student activities now scattered over the campus, we arrived at our standard of 10 square feet gross area per full-time student.

**Infirmaries:** Our standard of 1 square foot gross area per full-time student allows for expansion, but it should be remembered that it is pertinent only to Northwestern University because of our affiliation with Evanston Hospital.

**Service and Maintenance:** The standard for service and maintenance of 12 square feet gross area per full-time student was set on the basis of a thorough study made in 1948 by a committee of the purchasing, dormitories and commons, construction, and buildings and grounds departments in which they estimated their needs for future expansion.

**Miscellaneous:** The space covered under this classification is that which cannot properly be classified under any of the foregoing headings. A standard of 1 square foot gross area per full-time student enrolled seems adequate.

## CONTINUING STUDY OF OPERATING PRACTICE

Periodically, College and University Business asks a selected group of readers about a specific operating technic or method and publishes the findings for the guidance of readers in measuring their own methods.

### HOW'S YOUR INSURANCE PROGRAM?

ONE OF THE REQUIREMENTS OF A good college administrator is that he be able to plan intelligently for the future success of the enterprise with which he is associated. In few areas of his responsibility is need for intelligent planning more evident than in providing an adequate insurance program for his institution. The stakes are high, and a case of poor judgment by a college executive in appraising the institution's need for insurance protection can have disastrous consequences.

In an attempt to determine current practice and experience among college administrators in regard to insurance problems, COLLEGE AND UNIVERSITY BUSINESS conducted a survey among 1955 colleges and academies to determine the scope of their insurance programs. Of the 1955 institutions to which a questionnaire was mailed, a total of 443 colleges, universities and academies returned a survey report. In research circles a response of 22.6 per cent is considered very high, and the returns can be considered valid in projecting the results in terms of percentages in order to ascertain the extent of college insurance programs.

It became obvious, as the returns were studied, that in order to avoid inaccurate conclusions it would be necessary to segregate the responses from privately supported colleges from those coming from institutions receiving most of their support from tax dollars. This is due in large part to the fact that many states do not recognize state supported institutions as being subject to public liability claims.

Of the 443 questionnaires returned, 309 of them came from privately

**HAROLD W. HERMAN**

Managing Editor  
College and University Business

financed institutions; 134 from tax supported institutions. In analyzing the returns the two groups are considered separately.

Six major types of insurance were studied: (1) defensive or public liability insurance, (2) fire and allied lines, (3) crime coverage, (4) all-risk insurance, (5) medical reimbursement insurance for students, and (6) retirement and pension plans.

#### PUBLIC LIABILITY

The widest variance in insurance programming between privately supported institutions and tax supported institutions is in the field of defensive or public liability insurance. The private colleges show a much higher participation in this type of insurance. For example, only 22 per cent of the public institutions carry insurance for bodily injury on the premises, whereas 73 per cent of the private institutions carry this protection. Only 16 per cent of public institutions carry insurance for bodily injury caused by elevators in contrast to 42 per cent of the private colleges covering this risk.

Only in the case of insurance coverage for liability on college owned automobiles does the public tax supported college approach the participation percentage of private colleges. In this case 73 per cent of the public institutions reporting carry liability insurance for injury, and 68 per cent carry insurance for property damage. Among private colleges 87 per cent carry liability insurance for

injury caused by college owned automobiles, and 83 per cent carry property damage coverage for damage to property of a third party. A more detailed summary of defensive types of insurance carried by private and tax supported colleges is shown in Graphic Chart 1.

In regard to the low percentage of tax supported institutions reporting insurance coverage for public liability claims, it must be pointed out that the courts of this country are beginning to challenge the traditional immunity from liability enjoyed by state governments and their agencies. A state university or college of education has qualified as a part of the state and has shared this privilege. On the basis of recent judicial rulings this immunity cannot be considered inviolate. It would be wise for administrators in tax supported colleges to reexamine this situation.

#### FIRE INSURANCE

When it comes to protective types of insurance, such as fire insurance and allied lines, colleges and universities report an extremely high percentage of participation. Of private colleges, 97 per cent carry fire protection on buildings, and 80 per cent carry extended coverage on buildings, 95 per cent carry fire insurance on contents, and 74 per cent have extended coverage on contents.

Again, the tax supported institutions report a lower percentage. Only 76 per cent of them cover buildings with a fire on building policy; 61 per cent report extended coverage on buildings. In regard to fire on contents, 72 per cent of the state sup-

## Does your institution have the following DEFENSIVE insurance?

% answering Yes

- 309 private colleges
  - 134 tax supported colleges
- Each row = 100% of replies



premises

elevator

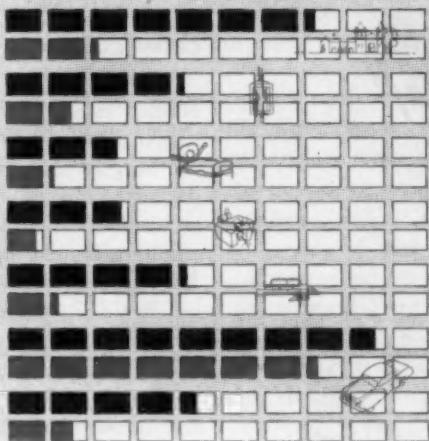
malpractice  
(infirmary)

contractual

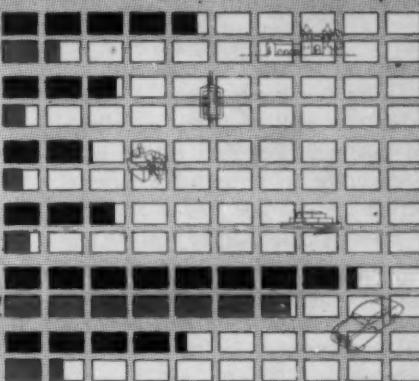
owners  
protective  
automobiles  
college owned

non-owned  
(faculty)

### BODILY INJURY (other than employees)



### PROPERTY DAMAGE (third party)



elevator

contractual

owners  
protective

automobiles  
college owned

non-owned  
(faculty)

### WORKMEN'S COMPENSATION



### OCCUPATIONAL DISEASE



Graphic Chart No. 1 giving summary of defense types of insurance carried by private and tax supported colleges.

Graphic Chart No. 2 giving summary of protective types of insurance carried by private and tax supported colleges.

## Does your institution have the following PROTECTIVE insurance?

% answering Yes

- 309 private colleges
  - 134 tax supported colleges
- Each row = 100% of replies



### FIRE and allied lines

fire  
on building  
extended  
coverage  
on building

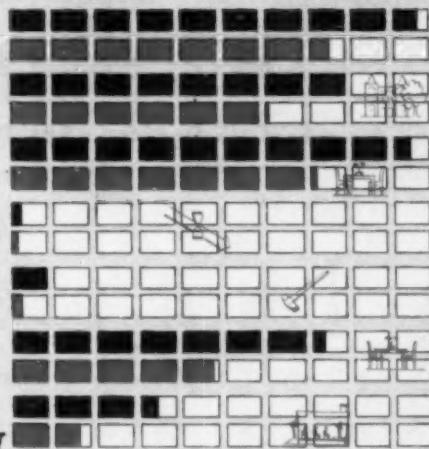
fire  
on contents

depreciation

demolition

extended  
coverage  
on contents

use  
and occupancy



### BOILER EXPLOSION



### PLATE GLASS



### WATER DAMAGE

ported institutions report protection, with 49 per cent carrying extended coverage on contents.

The risk of loss by fire is probably the most serious hazard faced by an institution and its administrators. It is the risk most likely to be encountered as a serious or catastrophic claim. Fire can easily create a situation that can well nigh put a college out of business. For that reason adequate coverage in terms of insurance protection against fire loss is imperative. Though the survey conducted by this magazine reveals a high percentage of colleges carrying fire insurance, it does not indicate whether the insurance carried is adequate in terms of replacement cost of properties insured.

In regard to use and occupancy insurance, the percentage of coverage in both private and tax supported colleges is fairly low. When one considers what the loss of a few residence halls might mean in terms of operating income or in the ability of a college to accommodate its maximum enrollment, it becomes evident that the loss of such income might have serious repercussions.

Of private colleges, 35 per cent report use and occupancy coverage; only 17 per cent of tax supported institutions carry this protection. Perhaps tuition fee insurance might be considered as a means of avoiding this risk. Use and occupancy insurance would compensate the insured only for the time needed to repair the facility insured. Tuition fee insurance would cover loss of fees for an entire year, if a fire made it impossible for a college to accept the number of students it would ordinarily accommodate if the facilities had not been destroyed. A detailed summary of protective types of insurance is given in Graphic Chart 2 on the preceding page.

In general, both private and tax supported colleges report that build-

ings are insured during construction. Seventy-four per cent of private col-

leges determine insurance protection on the basis of replacement cost.

Whether even with the following of trends in construction costs the properties are now adequately insured is not shown by this survey. The insurance protection could have been increased to match increased construction costs, but if the building was under-insured in the first place, it would still be under-insured even after an adjustment in coverage.

#### CRIME COVERAGE

In regard to crime coverage insurance, a higher percentage of the tax supported institutions report insurance for burglary, safe burglary, messenger robbery, office robbery, check forgery, and fidelity bonds than is the case among privately supported institutions. The highest percentage of coverage lies in fidelity bonds. Eighty-three per cent of tax supported institutions carry fidelity bonds on their business office personnel, with 77 per cent of private institutions reporting insurance coverage in this area. Table 1 gives a detailed summary.

#### ALL-RISK INSURANCE

All-risk insurance on office, laboratory, music and sports equipment and on



leges and 71 per cent of tax supported colleges follow this policy. Private colleges are more likely to carry the insurance themselves, the tax supported colleges requiring the contractor to take out the insurance.

The survey reveals generally good practice in regard to appraisals of property within the last five years. Among private colleges, 71 per cent have conducted appraisals of their property within the last five years; 43 per cent of the tax supported colleges reporting have made property appraisals within recent years. In both private and tax supported institutions the appraisals have been made chiefly by an outside appraisal firm, although architects rate second in mention as appraisers of property.

Of the private colleges reporting in this survey, 80 per cent state that insurance protection was increased or decreased on the basis of increasing or decreasing building costs. Forty-six per cent of tax supported colleges report adjustment of insurance protection in line with increasing or decreasing building costs. Among the private colleges, 60 per cent determine their insurance on replacement cost of the buildings involved; among tax supported institutions, only 45 per



paintings and art objects is not general. Surprisingly enough, laboratory

TABLE 1—CRIME COVERAGE INSURANCE OF VARIOUS TYPES CARRIED BY INSTITUTIONS REPORTING IN SURVEY

Type of College	Burglary	Safe Burglary	Messenger Robbery	Office Robbery	Check Forgery	Fidelity Bond (All Employees)	Fidelity Bond (Cashier)	Fidelity Bond (Bookkeeper)	Fidelity Bond (Treasurer)	Fidelity Bond (Bus. Mgr.)	Fidelity Bond (Cafeteria Cashier)	Fidelity Bond (Messenger)	
Private	52%	63%	52%	51%	41%	77%	48%	61%	61%	69%	65%	43%	45%
Tax Supported	59%	68%	64%	57%	37%	83%	44%	61%	55%	68%	77%	43%	41%

equipment is not protected by insurance as frequently as are art objects and musical equipment. In view of the current emphasis on scientific research, with the elaborate and costly equipment involved, it would appear that institutions are unnecessarily exposing themselves to loss. A detailed summary is given in Table 2 in the adjacent column.

#### MEDICAL REIMBURSEMENT

Until recently, few colleges maintained a program of medical reimbursement insurance for students. In view of a few fatalities and some serious injuries incurred by students participating in intercollegiate sports, many institutions are now giving this matter thoughtful consideration. Of the private colleges reporting on this survey, 26 per cent carry a medical reimbursement program for athletic teams; 25 per cent of them make the program available to the entire student body.

Among tax supported institutions represented in the survey, 22 per cent carry medical reimbursement insurance for athletic teams, but only 5 per cent provide such a program for the entire student body.

#### RETIREMENT AND PENSION PLANS

At present colleges and universities are not eligible for the social security provisions of the federal government, which has meant that in the field of retirement and pensions programs the institutions have had to initiate the program and to bear the cost. Among private colleges, 36 per cent report group life insurance coverage of faculty; 27 per cent extend it to the non-academic personnel. Twenty-eight per cent of the tax supported institutions carry group life insurance on faculty, and 25 per cent carry it on non-academic personnel.

In the main, the percentage of colleges reporting a formal retirement or a pension plan is encouragingly high. Among privately supported colleges reporting, 75 per cent provide a retirement program for their faculty, but only 41 per cent cover non-academic personnel as well. The record of the tax supported colleges is better in both categories. Formal retirement programs for faculty are provided by 82 per cent of them; for nonacademic personnel in 70 per cent of the colleges.

In providing income during disability resulting from accident or ill-

**TABLE 2—ALL-RISK INSURANCE OF VARIOUS TYPES CARRIED BY INSTITUTIONS REPORTING IN SURVEY**

Type of College	Office Equip.	Lab. Equip.	Paintings	Art Objects	Musical Equip.	Sports Equip.
Private	21%	25%	27%	36%	31%	16%
Tax Supported	11%	13%	17%	13%	26%	13%

ness through insurance protection, 20 per cent of the tax supported institutions are represented; only 11 per cent of the privately supported colleges provide for their staff in this way. Of those who have no income disability insurance program, 29 per cent of the private colleges have an announced

In regard to providing medical expense plans or offering them for consideration, the survey indicates that this is not general practice among colleges and universities.

Only 20 per cent of the tax supported institutions offer a medical expense plan to the faculty; 19 per cent of the privately supported colleges offer such a program. Of the state institutions, only 16 per cent extend medical care insurance plans to nonacademic personnel as against 19 per cent of the privately supported colleges.

#### WHO DETERMINES PLAN?

As to who determines the insurance program of the college or university, it is about an even toss-up between the business manager and a committee of the trustees. Actually, the larger number of the institutions in both private and tax supported categories indicate that a committee of the trustees carries the major responsibility in determination of insurance coverage. The majority, in both the tax supported and privately supported categories, however, report that the professional assistance of a qualified broker or consultant is used in placing insurance. Colleges appear to be avoiding the practice of scattering their insurance program among many brokers and agents, preferring one or two brokers to handle the entire program.

This survey has revealed an unusual appreciation of the part that insurance can play in the operation of a college or university, as indicated by the responses of college administrators represented in the survey. The major unanswered question appears to be not "Do you carry insurance?" but rather "Is the insurance you carry adequate for your needs and protection?" Until a college executive knows for certain that his institution is properly and adequately protected by insurance, he has not properly fulfilled the trust placed in his hands by friends, donors, staff and students—in safeguarding that institution's future.



# OUR EMPLOYEES GO TO SCHOOL

KATHRYN G. HANSEN

Personnel Officer and Instructor in Psychology  
University of Illinois

MANY INDUSTRIES HAVE SET UP special profit-sharing plans for their employes. While this type of activity is a closed door to colleges and universities on a strictly monetary basis, it is possible for these institutions to share one of their greatest contributions to society—education.

The University of Illinois in all its branches and divisions has provided just such an opportunity for its employes. At present there are two major nonacademic educational plans in operation that are of especial interest to those associated with nonteaching staffs.

One of these educational programs provides for the registration of a permanent nonacademic staff member in university classes up to certain credit-hour limits, if the employe has the approval of his employing department and of the office of non-

academic personnel and if he makes up all time missed in class attendance or takes a corresponding reduction in employment time and salary. He may register without payment of any fees if his yearly salary is \$2934 or less; if it exceeds \$2934, he becomes subject to full fees.

The employe may take any course in the university curriculum for which he has the necessary prerequisites, as it is not necessary for the course to have any bearing or relationship to his nonacademic employment. However, if the employing department wishes an employe to pursue a course for which he has the necessary prerequisites, and *requests* him to do so, the employe does not make up any time, nor does he pay any fees, regardless of salary.

For example, an accountant may be requested by his employing depart-

ment to take an advanced course in accountancy, or a statistician may be asked to take a course in mathematics or a statistical course limited to some particular field, in which cases, if the courses are offered during working hours, there is no reduction in appointment, there are no fees, and class attendance is taken on university time.

During the regular school year the program provides for registration in accordance with the following plan:

A full-time employe may register for four semester hours (or 1 unit) with the approval of or at the request of his department head and for six semester hours (or 1½ units) with the approval of or at the request of his department head *and* the dean or director of his division. Similarly, a three-fourths to full-time employe may register for six semester hours (or 1½ units) with departmental approval and for eight hours (or 2 units) with departmental and division approval. A half-time employe may register for eight semester hours (or 2 units) with

Practical lessons in first aid are a regular part of the evening class instructional program. Every foreman, supervisor, policeman and fireman is encouraged to enroll in these first-aid courses.



departmental approval, and for 10 hours (or 2½ units) with departmental and divisional approval.

In the summer session, the hour limitations are reduced 50 per cent.

#### HOW PROGRAM WORKS OUT

Employees are informed of the opportunity to enroll in university classes when they attend their orientation session presented by the office of non-academic personnel. They are encouraged to make an appointment with the personnel officer in order that plans may be discussed as they apply to their individual cases. Many employees have special problems, and arrangements can be made to meet them through these conferences prior to registration dates. Additional emphasis is placed on day class registration through special articles in the *Illini Worker*, our employee publication.

Responsibility for arrangements for entering, reentering or transferring to the university must be assumed by the employee. However, the personnel office assists the employee whenever necessary. A letter is sent by the employing department to the director of nonacademic personnel approving or requesting, as the case may be, the employee's registration in the number of hours or units desired. His nonacademic status is checked, and he is recommended to the office of admissions and records for registration in accordance with his request and in line with limitations and regulations pertaining

thereto. If he is a three-fourths to full-time employee, he is given permission to register prior to the regular registration period.

More than 100 employees are now participating each semester in this program, taking either undergraduate or graduate work. The educational record of the nonacademic staff has been good. During 1947-48 on our Urbana-Champaign campus, where the very nature of the educational program provides greater opportunities to the employees, 93.5 per cent of those registering completed their courses during the first semester; 79.5 per cent during the second semester, and 92.5 per cent during the summer session. The average grade-point standing for employees enrolled on the Urbana-Champaign campus for this same period was as follows: first semester, 3.840; second semester, 3.928; summer session, 4.183. This means that at all times during the last year the general average approximated a grade of B.

Many of our employees have not had an opportunity to attend college. Many of them, particularly in clerical positions, have completed one or two years of college work. All are appreciative of the opportunity to further their education. We have janitors majoring in music, machine operators studying speech correction, and graduate stu-

dents completing work on master's and doctor's degrees. Last year the first employee to enter this program as a freshman was graduated from the college of liberal arts and sciences with honors.

The program is, of course, a morale builder. In addition, the university has benefited from better trained personnel, and it often has been possible to employ persons at lower rates because of the additional educational benefits offered.

Does the university lose the employee following graduation? The program has not been in operation long enough to have any meaningful data as yet. We do know that several of those who have completed work toward undergraduate degrees now are working toward graduate degrees, and that others who have completed work toward graduate degrees have stayed on with the university in both academic and nonacademic positions.

#### EVENING CLASSES

The other major educational program is one of evening classes offered to the nonacademic staff by the division of university extension. The evening classes are open to all permanent nonacademic employees, regardless of educational background or salary. No departmental approval is required,

Left, below: A machinist learns by actual experience and practical instruction in the machinists' review course. Right: A professor of art gives individual instruction in drawing and painting classes.





Metal work is one phase of the general crafts courses.

since the classes are given outside of working hours. They carry no educational credit, but industrial credit is given and a certificate is presented to each employe completing a course. An employe's record in both evening and regular university courses becomes a part of his file in the office of non-academic personnel.

Our evening classes meet for two hours one evening a week for a period of 16 weeks. Prior to registration, a questionnaire is sent to every eligible employe asking what evening course he would be interested in taking. Courses are suggested by the office of nonacademic personnel and the extension division, with full opportunity for each employe to suggest any other course in which he is particularly interested. The offerings suggested are both vocational and avocational, although it is apparent that a course may be avocational for one employe and vocational for another.

After the questionnaires are returned and tabulated, the office of non-academic personnel and the division of university extension cooperate in drawing up the list of courses to be offered for registration. The division procures and pays the instructors and makes the necessary physical plant arrangements. Registration notices, carrying course descriptions, meeting nights, and place and date of registration, are then sent to all employes. At least 15 persons must register for a course in order to have it offered.

During past semesters courses that were offered in the evening class program included: current trends and developments (a course in interpretation of the news); beginning, intermediate and advanced Spanish; review of grammar fundamentals; psychology of supervision; university office procedures; beginning and advanced first aid; photography; beginning, intermediate and advanced typewriting; fundamentals of drawing and painting; general crafts; beginning and advanced shorthand; interior decoration; sewing problems; machinists' review course; music appreciation, and principles of effective speaking. Each semester the offerings vary, depending upon the demand at the time of registration, but from 10 to 16 courses are offered each semester.

#### CHECK ON CLASSES

If enrollment in any class is too large for good instructional purposes, more than one section is scheduled. A member of the staff of the office of nonacademic personnel, who is responsible for the training program, and a member of the staff of the extension division, who is responsible for this phase of the program, visit the classes from time to time to check on instructional practices and on class attendance, and to offer whatever assistance is requested by either the instructor or members of the class.

Following the completion of the 16 weeks' work, the University of Illinois

Employes' Council, an employe organization, sponsors recognition exercises for those completing their evening class work. The evening's activities include a program, exhibits and demonstrations by the various classes, presentation of the certificates by an official of the extension division, refreshments and a social hour. Photographers from the local newspapers cooperate with appropriate pictures and news coverage.

Our evening class program meets a definite need of the 25 per cent of our employes who did not complete high school and of those who did complete secondary school courses but who do not have university entrance requirements because they completed vocational curriculums. In addition, many of our employes completed their high school work several years ago and do not feel capable of undertaking university work, nor do they wish to enter university classes made up of recent high school graduates. There has been an increasing interest in the program as shown by the fact that more than three times as many employes are now enrolling and completing these courses as did at the time of the initial offerings.

The university cannot show, as industry is sometimes able to do, that our employes produce more gears or tires or even typewritten sheets because of the evening class program. Nor will turnover figures be too meaningful until our labor market, especially in the clerical field, becomes more stable. However, we do know that the majority of our employes completing their evening class work are those we rate as "good" or "excellent" in their particular jobs, and we feel an employe cannot help but be a more effective representative of the university if he grows in his cultural experience as well as in his vocational experience.

The relationship of both the evening and day class programs to upgrading has not been overlooked. We hope to do much more in the near future along the lines of correlating these instructional activities with promotional opportunities. The division of university extension is cooperating with the office of nonacademic personnel in studying possible curricular offerings in the evening class program that would offer promotional opportunities to employes and which, at the same time, would provide better trained personnel for university nonacademic positions.

# MEDICAL REIMBURSEMENT INSURANCE

*serves this metropolitan college better for less*

**JOHN F. WHITE**

Dean, Office of Development  
Illinois Institute of Technology

THE PROBLEM OF MEDICAL REIMBURSEMENT insurance for students is one that has been faced recently by Illinois Institute of Technology as it has been by many similar institutions at the secondary and higher education levels. In approaching the problem, Illinois Tech took several steps that helped to bring about a successful solution.

After surveying such a program, the institute decided that by establishing medical reimbursement insurance it would not be adding frosting to the cake but would be meeting a real moral, if not legal, obligation to its student body that could be met in no other way.

Second, it was decided that, in view of its medical program and the special situation of a collegiate organization, the college could not be adequately served by the standard form of hospital and medical care insurance. There was no intention of supplanting or even underwriting the existing program, which consists of a doctor and nurse in a dispensary for diagnostic and emergency first-aid services only. The objective was solely to implement these services through an insurance program patterned to fill our needs.

A third factor of great help was that the planning was done, not by one person or by one office alone, but by the business officers, medical officers, the dean of students, and the students themselves, in cooperation. This meant that all points of view were heard and that the end result was satisfactory to all concerned.

Our desire was to obtain the insurance benefits needed, after a realistic appraisal of our needs, for as low a cost to the students as possible. This



meant a thorough survey of present facilities and requirements. The counsel of an insurance specialist in this field was necessary to learn if coverage was available for hospital expenses, including medical fees, certain outpatient treatments, house calls, consultants, dentistry and surgical expenses. The latter classifications were considered essential. As typical hospitalization insurance did not offer a satisfactory answer to the Illinois Tech problem, an agreement was arrived at and a special schedule of benefits devised.

## OBSTETRICS EXCLUDED

With certain changes the typical surgical schedule was accepted. As Illinois Tech is located in a large metropolitan area, it was agreed that the schedule should range up to \$225 instead of the \$150 figure used in most programs. Because the plan was to implement current services and to cover all activities, including athletics, an item covering medical treatment for sprains, contusions and abrasions was added, even though it rarely appears in such schedules. Being realistic, this was important because much college medical treatment is of this type. The number of married women students comprises a relatively low percentage of the student group. Consequently, because obstetrics imposes a premium penalty, this coverage was excluded. It was not deemed advisable to penalize the entire group for the benefit of a few.

The medical attention provision finally agreed upon was \$3 a visit with

a \$150 limit (a) while the student is confined to the home on account of the following diseases: typhoid fever, scarlet fever, smallpox, mumps, diphtheria, measles, pneumonia, chicken pox, meningitis, poliomyelitis, whooping cough, and German measles; (b) while the student is confined to a hospital on account of any illness. This, of course, supplements the surgical schedule mentioned above.

Miscellaneous hospital services are included in most hospitalization policies but, again, because this was a college without an infirmary and operating room facilities, something additional to the usual offerings was needed. Consequently, the following provision was made: (a) \$35 for x-ray examinations, laboratory tests, anesthesia, use of operating room, special medicines, temporary surgical appliances and ambulance, if rendered by a hospital, either when the student is confined therein or when requisitioned by the institute physician; (b) \$10 for the foregoing services when required for emergency outpatient treatment of accidental injury.

Coverage for injury to teeth was needed, and the final policy included \$100 for treatment resulting from injury to *sound natural teeth*. Provision for payment of a medical consultant when deemed necessary by the institute physician for diagnosis or treatment was felt by the college to be of prime importance, and this has been arranged in our plan.

Hospital board and care is covered at a rate of \$6 per day with no limit



Special coverage includes treatment for sprains, contusions and abrasions.

on the number of days except by the aggregate limit of \$500 for each illness or injury incurred. This differs from the usual plan, which limits hospital confinement to a specified number of days.

Naturally there are exclusions. These were selected to eliminate benefit payment only for those illnesses or injuries that are not common to the entire student group. Our purpose throughout was to provide all students paying the same premium with the same benefits. These exclusions were agreed upon by the college in advance and do not hamper the functioning of the plan in any way.

In the operation of this plan, the institute, by its choice, plays an important rôle. Students are permitted to use the doctor or hospital of their choice, but all bills are approved by the college doctor before payment is possible. This benefits the insurer but is equally important to the college. It enables the medical officer to know what is happening to his students both on and off the campus. In order to operate a realistic student health program, this is essential.

The insurance is being offered to students for \$7 a semester. Supplementary coverage is available to students returning for the summer months. Graduating students are offered a continuing insurance policy so that their protection may go on uninterrupted after they leave the institute.

The ideal way to establish a medical reimbursement plan is on a 100 per cent enrollment basis with all students participating. Illinois Tech's program was planned with this in mind. How-

ever, like in so many other institutions, about the time the program was ready for adoption tuition was raised \$70 a year and an additional \$14 fee did not seem advisable. Consequently, a compromise was necessary, and participation in the insurance is required only for those living in college residence halls and is included in their bills. For all others it is optional and available at the time of registration.

No physical examination is required when the policy is accepted at registration time, although such an examination at student expense is obligatory after the opening of classes. Our insurance counselor advised and arranged that we install this program with no minimum enrollment requirement.

#### COLLEGE MUST SELL PLAN

The college, if such a program is to be successful, must take an active part in selling the idea to its students. It must not only believe in, but work for it. At Illinois Tech the student newspaper is used to disseminate information and opinions, and letters recommending the plan are sent to all students by the dean. Attractive brochures outlining the plan, prepared and furnished by the insurance counselor, are distributed to all students.

The response of students has been heartening. Evidence of a need for expansion among the uninsured is already obvious, and it is hoped that this can be done. Certainly all students participating in athletic activities should—and probably will—be required to have this coverage. Since varsity athletes are covered in our plan,

no additional coverage is needed by the athletic department. The next step is 100 per cent enrollment, and we hope that this will be accomplished soon.

If we assume that a college has a moral, if not legal, responsibility for the physical well being of students, there is only one satisfactory approach to the student medical reimbursement plan: that is to make it impossible or extremely difficult for the student to avoid taking the insurance. Waivers on the basis of prior coverage are not, *per se*, a satisfactory excuse for avoidance and, if accepted, lead to misunderstanding and ineffectiveness. This plan pays benefits in addition to payments for the same disability by other companies or hospital associations. To require 100 per cent participation, therefore, imposes no penalty, but instead rewards students by a reduction in the rate for all.

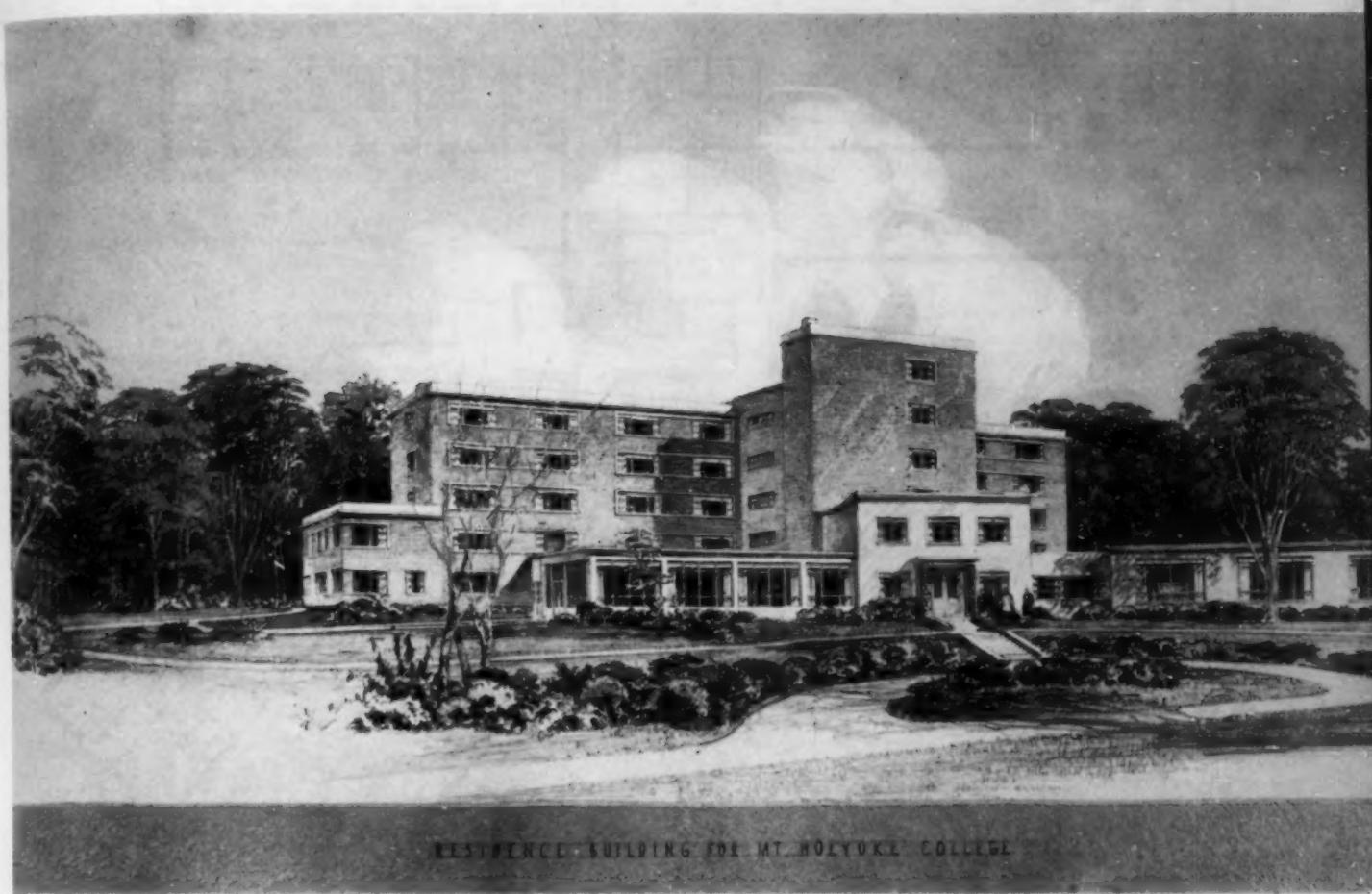
When a plan of this type is discussed, there are always those who fear it on the basis that they believe it to be at least a step in the direction of socialized medicine. Such an accusation, of course, cannot be substantiated. Free choice of hospital, surgeon or physician is exercised by the insured as well as by the uninsured student. Pro rata distribution of the cost on a prepayment plan injures none but saves many from an inconvenience if not a serious financial problem. The medical staff at Illinois Tech is among the staunchest supporters of our plan. The only dissatisfaction in this institution relative to insurance of this type is over the lack of 100 per cent enrollment.

If there is any word of caution that those who worked in developing this plan might offer, it would be to select a recognized specialist in the field to guide them in developing an individual program for their institution. In Illinois Tech's case no standard policy would suffice, and all the study given by the college to the problem was worth while. One will feel when he finishes that he himself has become an insurance expert and will find himself in a position to perform a real service to his students.

We know that, through such medical reimbursement insurance, the college and students are served in a better manner on a less expensive basis than could be done in any other way. We believe that such coverage will one day be a part of every institution's student personnel program.

*Mount Holyoke builds a five-story*

# STUDENT RESIDENCE



RESIDENCE BUILDING FOR MT. HOLYOKE COLLEGE

## DETAILS OF CONSTRUCTION

**CONSTRUCTION:** Fire-resistive, reinforced concrete frame with brick and limestone exterior. Separating walls between bedrooms, 2 foot solid plaster partitions; corridor walls, masonry block, plastered. Projected windows, steel construction; window sills, slate or bluestone. Steel frame stairways with granolithic treads.

**FLOORING:** Asphalt tile, in the main, with rubber tile in public rooms. Underside of floor slabs, which are being poured on plywood to create a smooth undersurface, serve as ceilings in student rooms.

**WALLS:** Painted plaster on cinder concrete blocks. Student rooms, pastel colors.

**CEILINGS:** Corridors and ceilings of coffee room, library, office, lounge and dining room, acoustically treated with perforated tile.

**HEATING:** Vacuum vapor, two-pipe steam system with steam provided from central plant. Recessed convectors below windows in every room; automatic control system.

**VENTILATION AND AIR CONDITIONING:** Fan-controlled exhaust systems from bathrooms, kitchen and dishwashing room. One 45 cu. ft. and one 60 cu. ft. refrigerator.

**LIGHTING:** 600 watt limit per single student room; 1200 watt limit per double room. No ceiling fixtures in lounge.

**CALL SYSTEM:** Buzzer system to each student room from reception desk.

**ELEVATOR:** One self-service elevator from main floor to fourth floor.

**KITCHEN:** One central kitchen with pantry. Kitchen has two gas hot-top ranges; one gas oven; one gas broiler and griddle; one stainless steel steam table for serving; mixer; coffee urns. Dishwashing room, separate from kitchen.

**SPECIAL FEATURES:** The lounge, which has natural birch plywood panels, has fireplace with 4 foot opening. Fireplace is outlined with bluestone; wall in which it is set is painted brick. Some of the faculty rooms, the head of house suite, and the doctors' quarters also have fireplaces. Rooms include prefabricated, built-in closets, and built-in dressing tables. Kitchenettes and laundries are located on three upper floors for student use. A bicycle room is provided on the main floor, and there is a sundeck on the roof.

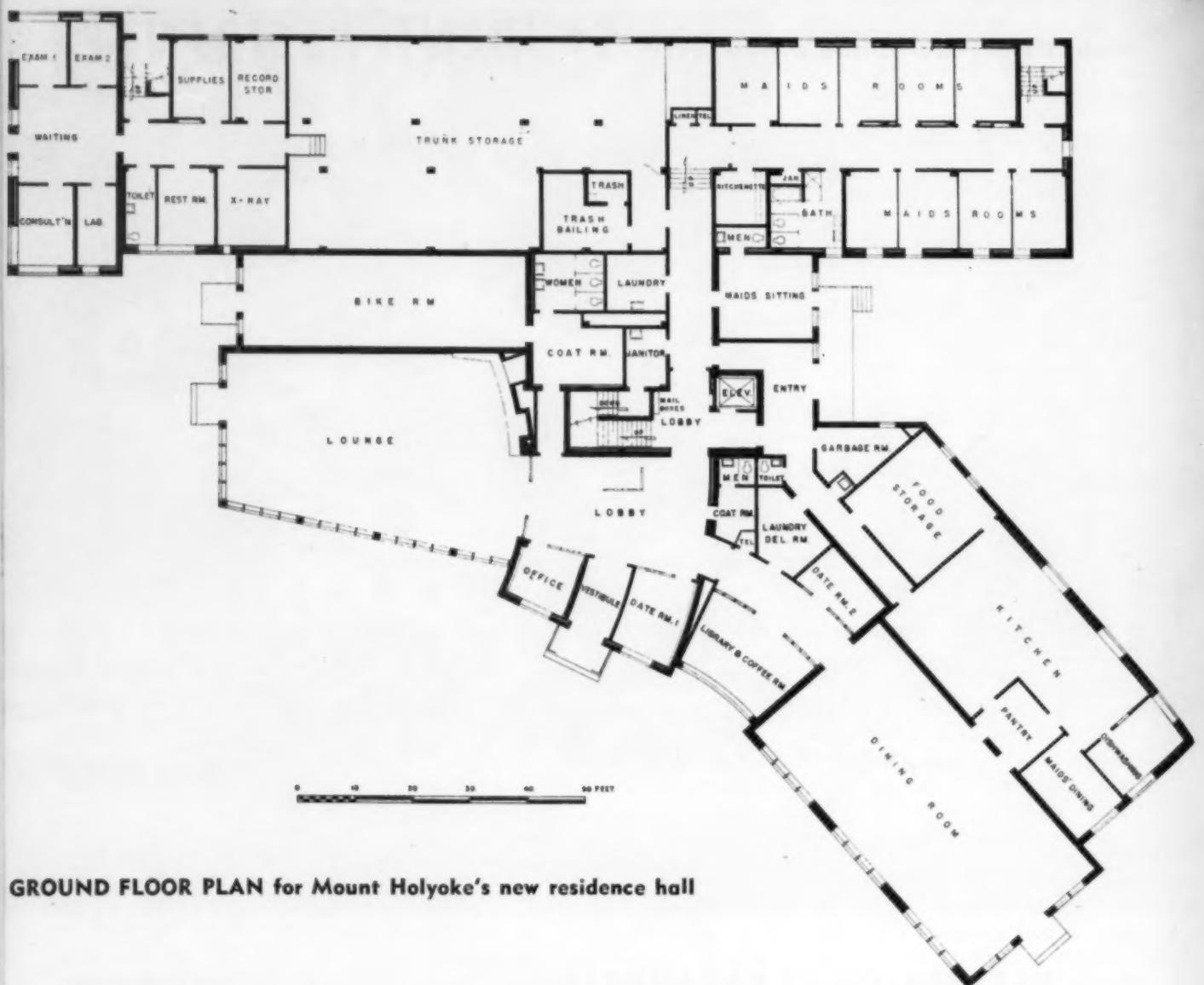
**COSTS:** Construction contract with George B. H. Macomber Company of Boston for \$663,750, excluding an estimated \$11,200 for equipment (kitchen, venetian blinds), estimated \$31,500 for furnishings, and \$30,000 for site preparation (drainage, extension to steam line, road work, sidewalks and moving a house).

THE NEW FIVE-STORY RESIDENCE hall under construction at Mount Holyoke College will accommodate 100 of the approximately 1200 students enrolled. Expected to be ready for occupancy this fall, the building also will contain quarters for five faculty members and for the resident physicians, as well as three examining rooms and an outpatient department, an apartment for the head of house, and nine rooms for domestic help.

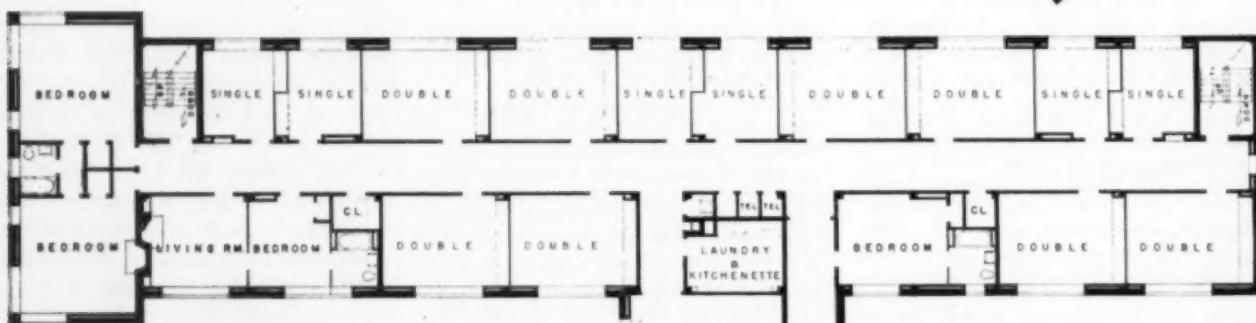
To simplify the construction and to reduce costs, effort was made by Douglass Orr of New Haven, architect, to eliminate extraneous space in the main structure. Therefore, the main stairway, bathrooms and self-service elevator are in a vertical tower outside the main structure. This tends,

## DORIS M. DEAKIN

Assistant Director, Public Relations  
Mount Holyoke College  
South Hadley, Mass.



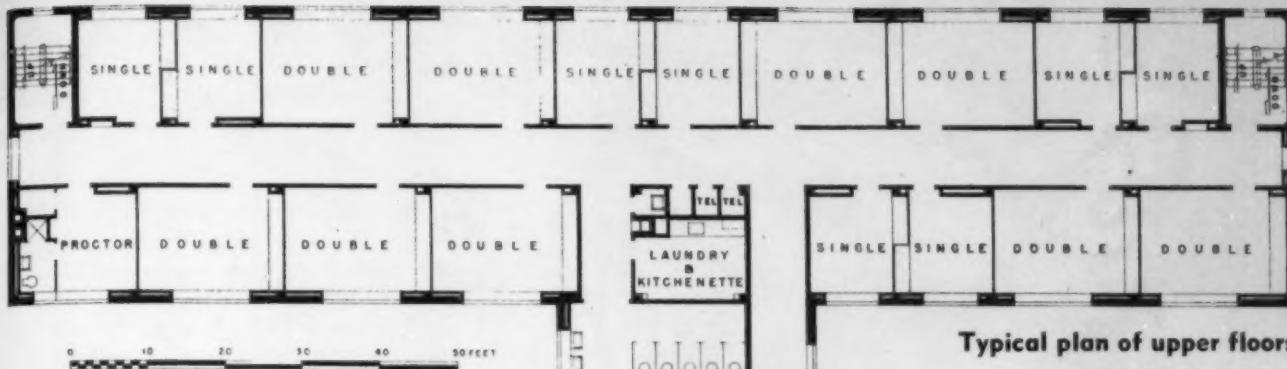
**GROUND FLOOR PLAN** for Mount Holyoke's new residence hall



The lounge, kitchen and dining room on the ground floor, and the smoking and typing rooms on the first floor extend as a separate unit from the main building.



**FIRST FLOOR PLAN**  
Mount Holyoke College



**Typical plan of upper floors**

also, to remove noise from the student rooms. The lounge, dining room, and kitchen on the ground floor, and the smoking and typing rooms on the first floor extend as a separate unit from the main building. The lounge and dining room are planned as open rooms with large glass areas. A small library and room for after-dinner coffee are adjacent to the main dining room. Dates rooms are near by.

Located on the north end of the campus and facing east, the building will take advantage of morning as well as afternoon sunlight and of the

view across a small lake. It has 35 double rooms, 17' by 14'3", and 31 single rooms, 10'10" by 14'3", and covers 540,000 cubic feet.

As part of a new development, which will include the relocation of playing fields and riding stables and the construction of a new gymnasium, the building will relieve some of the pressure of wartime crowding in residence halls.

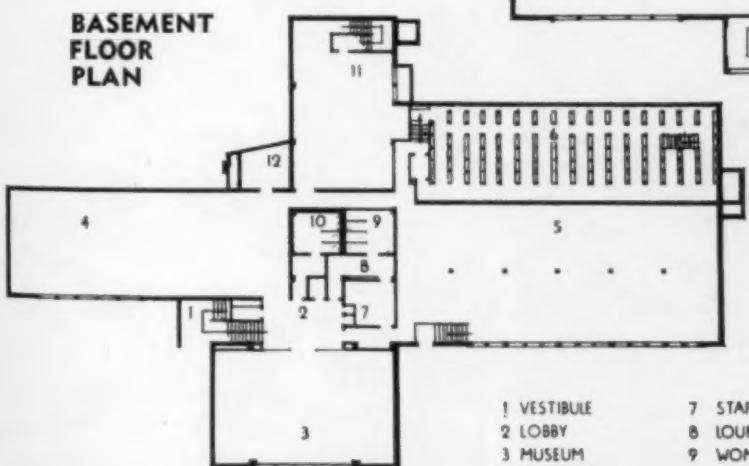
## **LIBRARY has the flexibility to serve an enlarged student body**

WHAT FUTURE ENROLLMENT TO anticipate when planning college buildings is a puzzler. When preliminary plans for a new library at Gustavus Adolphus College were completed there were 500 students in school. It was thought that enrollment might go as high as 800 and the building was designed on the basis of this figure, with

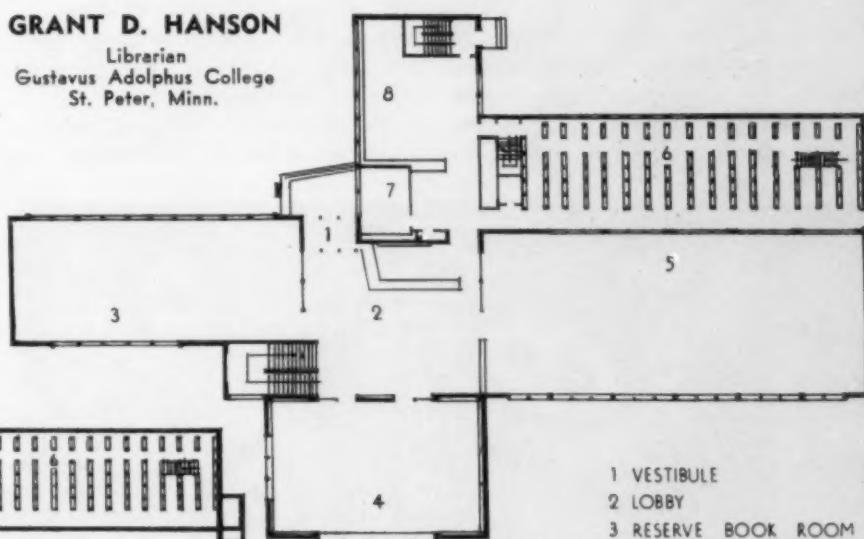
### **GRANT D. HANSON**

Librarian  
Gustavus Adolphus College  
St. Peter, Minn.

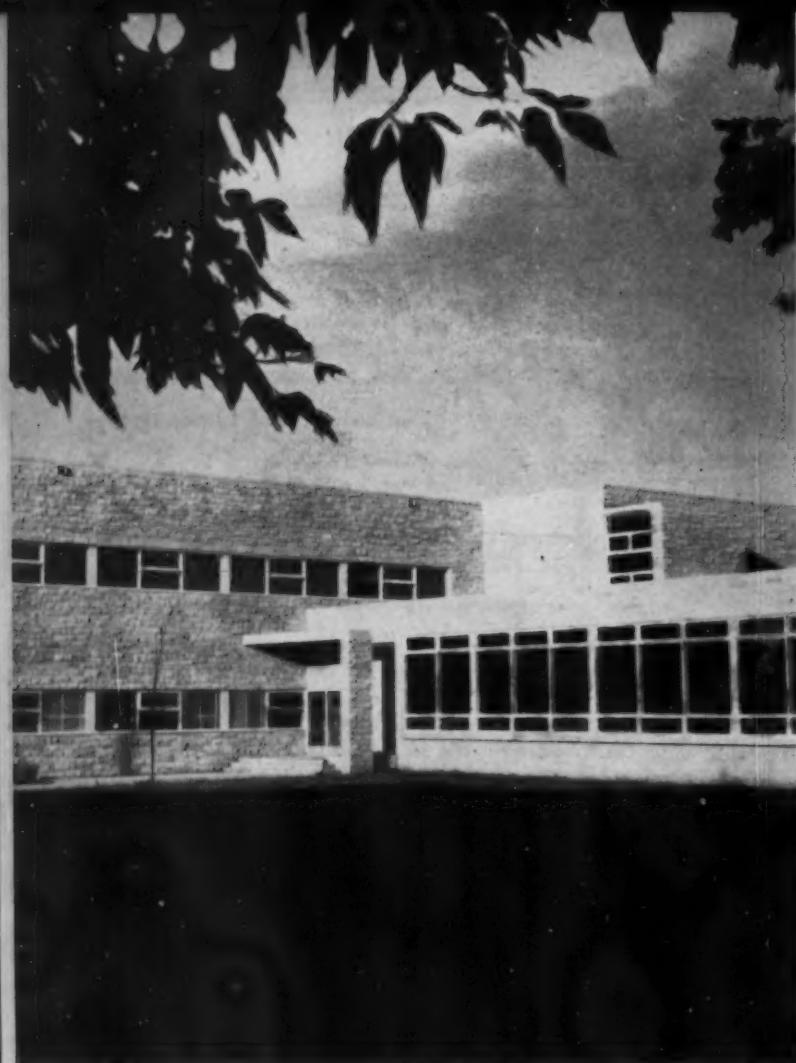
#### **BASEMENT FLOOR PLAN**



- 1 VESTIBULE
- 2 LOBBY
- 3 MUSEUM
- 4 ARCHIVES
- 5 RECEIVING
- 6 STACK ROOM
- 7 STAFF REST
- 8 LOUNGE
- 9 WOMEN
- 10 MEN
- 11 MACHINE ROOM
- 12 VAULT



**FIRST FLOOR PLAN**



EXTERIOR VIEW, GUSTAVUS ADOLPHUS COLLEGE LIBRARY

seating accommodations for 30 per cent considered adequate. Before ground was broken in April 1947, enrollment was pushing the 1300 mark. Elasticity in the functions of certain areas of the

library, opened for use last September, has permitted the original plans to serve the enlarged student body.

The \$420,000 building is, roughly, an uneven cross, 184 feet the long way

by 114 feet across. The idea of divisional reading rooms was abandoned as too difficult to administer in an institution of this size, and virtually all services are provided on one floor with control from the central desk through ceiling-high plate glass partitions.

The stack area adjoins the main reading room separated by bookcases low enough to allow vision but not passage between the two areas. All stack access is through a gate at the charging desk. If advisable later, the bookcases can be torn out and the stacks made completely open off the reading room. Four stack floors, with uprights acting as steel framework to support the slabs, have a capacity for 100,000 volumes with access by hydraulic elevator and two stairways.

All millwork and furniture are white oak. Chair backs in the main reading room are green leather; in the reserve room they are yellow. Sloping top tables, 19 feet long, are used in the reserve room and are a hit with students. Shelving for current periodicals fills the north wall in the main reading room. Reader accommodations are as follows:

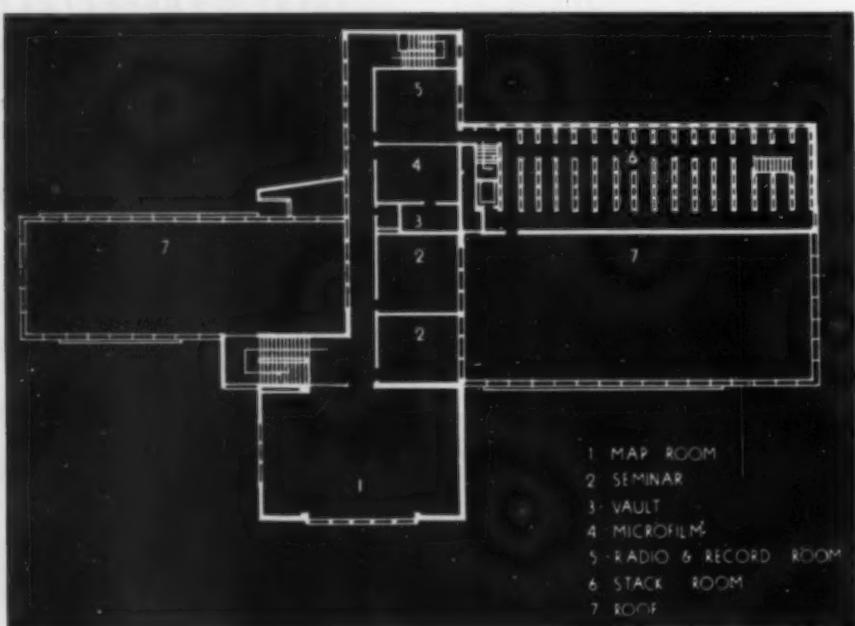
SPACE	NO. OF STUDENTS
Main reading room.....	100
Reserve room.....	60
Almén-Vickner browsing room.....	40
Second floor study room.....	40
Seminar rooms (4).....	36
Stack carrels.....	40

Visitors comment most about the colorful walls: cocoa brown in the main reading room; deep green in the reserve room, and lime yellow in the lobby and stacks.

The exterior of the library building is of yellow Kasota stone quarried within sight of the building and matching other recent construction on the Gustavus campus. All exterior glass is of the insulated multiple type set low enough in the reading rooms to allow full view of the Minnesota River valley east of the campus. Fluorescent lighting provides 33 foot-candles in the reading rooms and is used throughout the building. The lobby floor and stairs are terrazzo. In most other areas floors are rubber tile. The ceilings are acoustic plaster throughout.

The building is heated from the campus heating plant (steam by gas and oil). An air washer and fans circulate fresh air through the building and ensure humidity correct for both human beings and books.

Architects were Magney, Tusler & Setter of Minneapolis.





▲ Main reading room has cocoa brown walls, fluorescent lighting.

→ Browsing room. Low multiple glass windows permit view of river valley.



# DINING HALL

*facing dormitory row at Denton, Tex.,*

*replaces two student dining halls and a public cafeteria*

PRESTON M. GEREN

Architect  
Fort Worth, Tex.

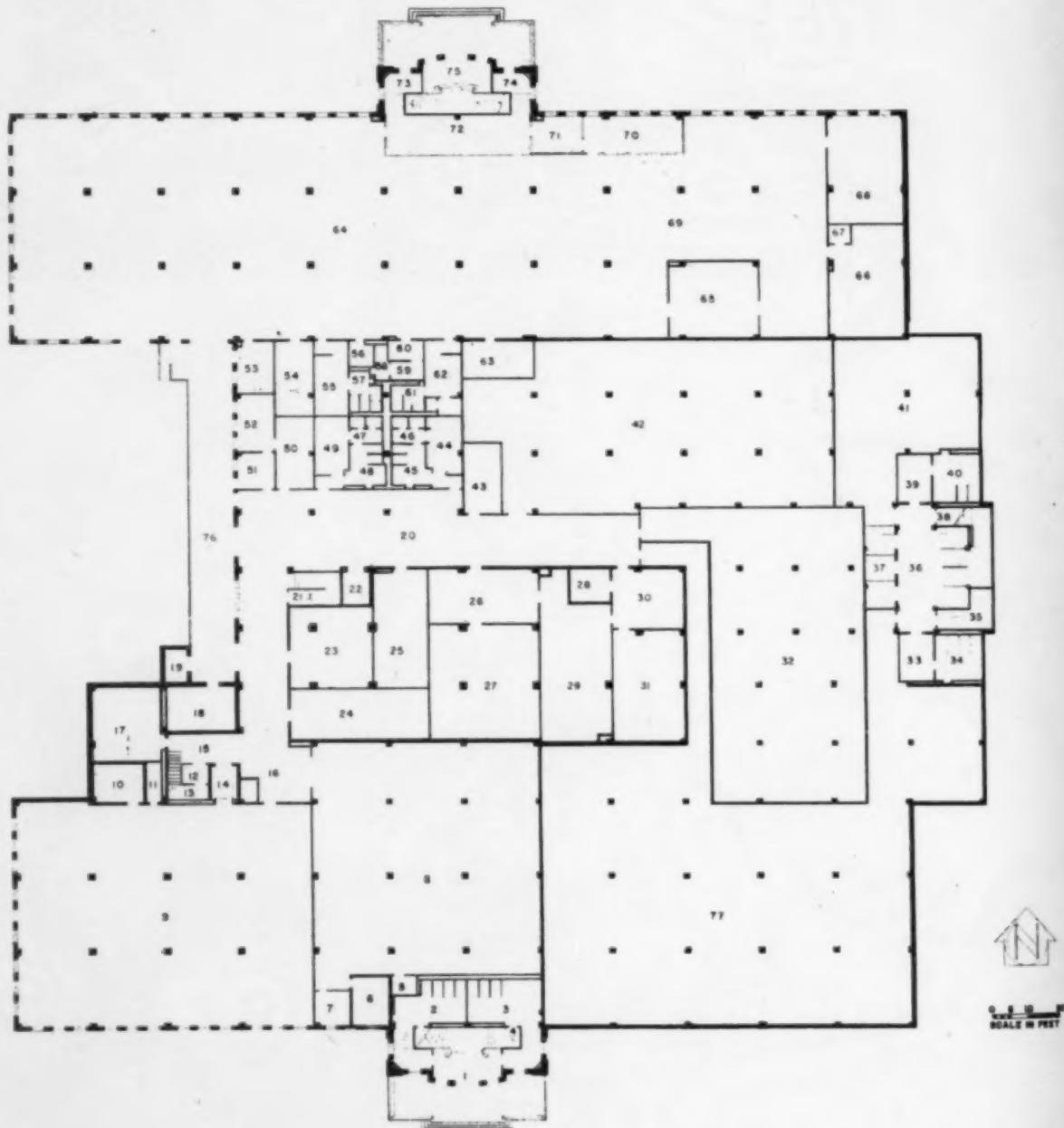
THE NEW DINING HALL FOR TEXAS State College for Women at Denton occupies a sloping site in front of "dormitory row" and therefore is con-

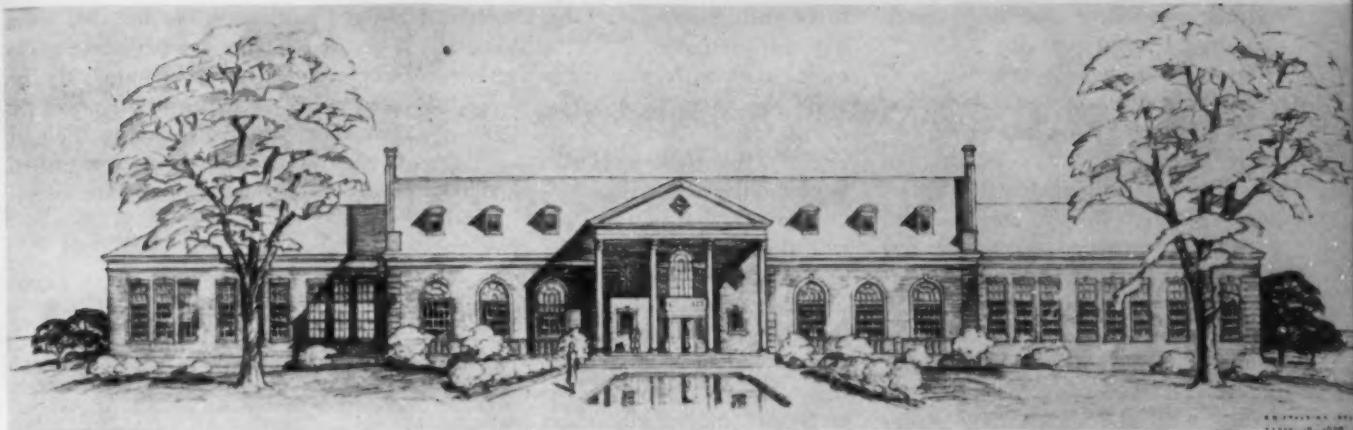
venient to all residence halls. Reasonably convenient to the classroom area of the campus, it replaces two separate student dining halls, one con-

structed about 1914 and the other about 1918, which are crowded, particularly in the kitchen area. It will also replace a public cafeteria that

GROUND FLOOR

1. Vestibule
2. Girls' Toilet
3. Boys' Toilet
4. Janitors' Closet
5. Toilet
6. Transformer Vault
7. Office
8. Machine Room
9. Bakery
10. Bakery Refrigerator
11. Store Room
12. Janitors' Closet
13. Elevator Machine Room
14. Elevator
15. Passage
16. Passage
17. Storage
18. Garbage Room
19. Can Washing Room
20. Passage & Receiving
21. Elevator Machinery Room
22. Elevator
23. Dry Vegetable Storage
24. Moist Vegetable Storage
25. Fruit Storage
26. Butcher Shop
27. Meat Storage
28. Ice Cream Hardening Room
29. Frozen Foods Storage
30. Ice Cream Room
31. Dairy Products
32. Dry Storage
33. Lounge
34. Women's Toilet
35. Storage
36. Lobby
37. Coat Alcove
38. Janitors' Closet
39. Lounge
40. Men's Toilet
41. Equipment Storage
42. Storage
43. Soiled Laundry Room
44. Colored Men's Lockers
45. Toilet
46. Shower
47. Shower
48. Toilet
49. White Men's Lockers
50. Office
51. Time Keeper
52. Office
53. Laundry Office
54. Storage
55. White Women's Locker Room
56. Janitors' Closet
57. Toilet
58. Toilet
59. White Women's Lockers
60. Lounge
61. Toilet
62. Toilet
63. White Women's Lockers
64. Air Compressor Room
65. Laundry Work Area
66. Dry Cleaning Room
67. Fur Storage
68. Gas Room
69. Stock & Sewing Room
70. Pressing Area
71. Accounting Office
72. Manager's Office
73. Cell Office
74. Entry
75. Entry
76. Vestibule
77. Loading Dock
78. Storage





includes a private dining room for special functions.

The \$1,500,000 building, expected to be ready for the fall term, provides four student dining rooms, a public cafeteria, two banquet halls and lounges, and a small private dining hall and lounge for special functions. Each student dining hall will seat 400 persons and, as service is cafeteria style, at least 800 can be served in each hall during a serving period of from 60 to 90 minutes.

#### CAFETERIA SEATS 250

The public cafeteria, having a seating capacity of 250, provides service for day students, faculty, visitors and the public generally. Large faculty parties and student organization parties will be held in the banquet rooms which may be opened together for the larger groups.

These special accommodations also are available for town clubs, as Denton is small and has no such facilities. The lounge and dining room on the second floor are for the board of regents and for entertaining distinguished guests.

All the facilities are served from a single, centrally located kitchen that connects directly with the serving rooms of the student dining halls and cafeteria and with the banquet rooms and by dumb-waiter to the second floor service room adjoining the regents' dining room. Offices for the college dietitian and locker rooms for the various employees are conveniently located along the rear of the kitchen area.

To take advantage of the sloping site, the principal entrance to the first floor was placed at grade; the service area of the ground floor at dock height at the rear of the building. This service area includes large spaces for dry

storage; moist vegetable storage; cold storage for meat and dairy products and for frozen foods.

#### STOREKEEPER'S RESPONSIBILITY

Deliveries of all supplies are made at the dock at the rear of the ground floor and are under the immediate supervision of the storekeeper and his assistants. The help will enter and leave through this supervised area and will report in and out on a time clock adjacent to the storekeeper's office.

A portion of the ground floor is assigned to the baking department, which will be equipped to prepare the large quantities of bread, cakes and pastries required.

Because of the large areas available on the ground floor, the college laundry now located in a building on the dining hall site has been assigned the entire north portion. This location is convenient to "dormitory row" and, with carefully designed ventilation, it will not be an objectionable tenant.

The building is constructed of reinforced concrete up to and including the first floor, and of structural steel above with reinforced concrete slabs for the second floor but with wood decking for the roof. Exterior walls, faced with red brick trimmed with stone, are backed with hollow tile. Interior partitions are of hollow tile; those in food preparation areas have glazed surfaces with projecting corners protected by stainless steel, bull nosed inserts.

#### GEORGIAN AND MODERN

Walls throughout the finished areas of the building are plastered and generally are treated in the Georgian style, but two of the dining halls and the cafeteria are in Modern.

Floors in all public areas are of terrazzo in simple patterns. Floors in

service spaces are of concrete, and those in food preparation areas are colored and waxed. Ceilings generally are of acoustic plaster.

Steam for heating, for cooking, and for certain power is furnished from a central plant and enters the building through a utility tunnel to the machine room from which is distributed low pressure steam for laundry equipment and a turbine driven compressor. The heating system is a combination of steam convectors and a hot water heated circulating air system with provision for introduction of outside air as well as recirculated air. These units are designed for both summer cooling and winter heating, but cooling is now provided only for the special dining rooms and for one student dining room, which is sufficient for the summer school enrollment. Other dining rooms can be cooled simply by adding additional cooling capacity. The cooling system utilizes a turbine driven centrifugal compressor using freon refrigerant, together with the required chillers and pumps.

#### ELIMINATE KITCHEN ODORS

Kitchen ventilation is accomplished by large exhaust fans that take air through hoods over ranges, cookers and dishwashers and discharge it through the roof. Fresh air is introduced indirectly through the adjacent serving areas to ensure against kitchen odors entering the building.

Refrigeration for the various coolers is provided by three compressors using ammonia for the refrigerant with circulating brine being used in all rooms except the deep freeze, which is direct expansion. One of the determining factors in selecting ammonia as the refrigerant for cold storage was its availability in comparison with other refrigerants during the late war

and the possibility that such conditions might again prevail.

An innovation in connection with both refrigeration systems is the use of an all-masonry cooling tower recently developed. Tests indicate an unusually high efficiency, with consequent reduction in size, and it is anticipated maintenance costs will be less than with a conventional wood tower. Since the tower is located on the ground in the service area west of the building, its weight was not an objection and the masonry walls harmonize with the surrounding structures.

#### CENTRAL POWER PLANT

Electric power is supplied by the college power plant, and service wires enter the building through the utility tunnel. Lighting in service areas generally is incandescent. Student dining rooms and lounges and the cafeteria have specially designed flush fix-

tures with fluorescent tubes. Special fixtures, designed for the various rooms, harmonize with the design motif of the room.

#### COMMUNICATION SYSTEM

A public address system is provided throughout the building and is arranged so instructions can be given to workers in the various service areas, and music, radio programs, and special addresses can be channeled to each of the various public areas. In addition, the local telephone system connects with the various offices and departments.

Funds for construction are from an issue of revenue bonds amounting to \$2,775,000. A portion of this issue was used to finance the construction of a large addition to one of the residence halls, and another portion was used to purchase certain outstanding bonds that were secured by a first lien on all revenues that could be

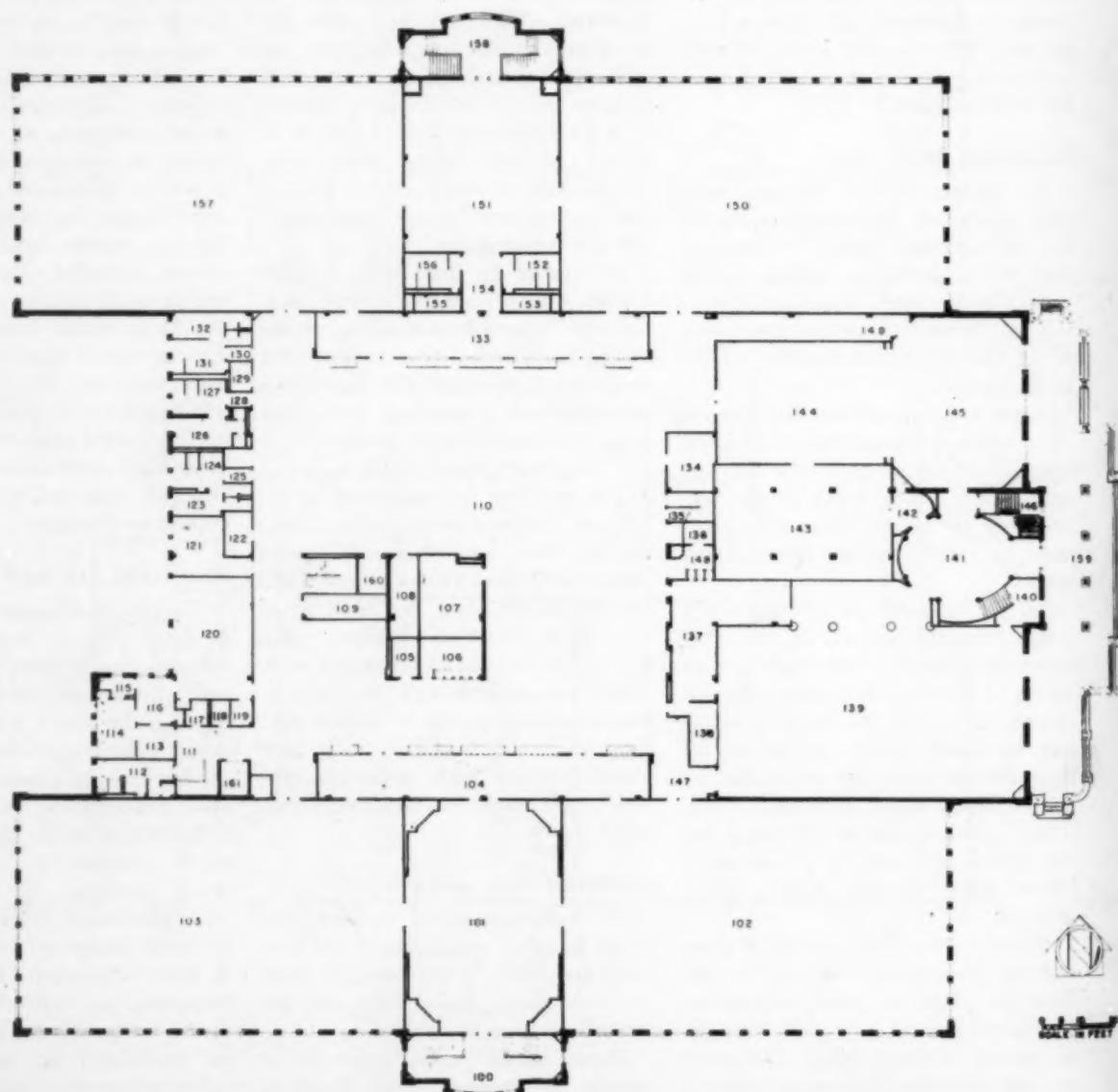
pledged legally. While the new issue is secured by the same revenues, the estimated savings in operation of the more efficient kitchen and storage facilities are sufficient to retire the cost of the dining hall. These estimated savings on an annual basis are as follows:

General kitchen help.....	\$ 34,000
Special kitchen help (dietitians).....	6,000
Food distribution (2 storehouse trucks)	6,000
Reduction in waste and loss owing to better supervision.....	25,000
Miscellaneous savings.....	25,000
Reduction in maintenance costs.....	30,000
	\$126,000
Estimated increase in laundry profits.	5,000
	\$131,000

Plans were developed after inspecting numerous similar plants at other colleges and in cooperation with President L. H. Hubbard, W. M. Loveless, the business manager, and Nell Morris, the chief dietitian.

#### FIRST FLOOR

- 100. Foyer
- 101. Lounge
- 102. Southeast Dining Room
- 103. Southwest Dining Room
- 104. Service Area for Dining Rooms
- 105. Pastry Box
- 106. Pantry Box
- 107. Meat & Cooks' Box
- 108. Dairy Box
- 109. Linen Storage
- 110. Kitchen
- 111. Passage
- 112. Girls' Toilet
- 113. Anteroom
- 114. Office
- 115. Toilet
- 116. Office
- 117. Service Closet
- 118. Janitors' Closet
- 119. Storage
- 120. Classroom
- 121. Employees' Dining Room
- 122. Linen Room
- 123. Colored Women's Locker Room
- 124. Toilet
- 125. Vestibule
- 126. Colored Men's Locker Room
- 127. Toilet
- 128. Vestibule
- 129. Janitors' Closet
- 130. Vestibule
- 131. Toilet
- 132. Service Area for Dining Rooms
- 133. Special China & Linen
- 134. Janitors' Closet
- 135. Storage
- 136. Service Area for Cafeteria
- 137. Soda Fountain
- 138. Cafeteria
- 139. Storage
- 140. Rotunda
- 141. Entry
- 142. Lounge
- 143. Banquet Room
- 144. Lounge
- 145. Stairway Down
- 146. Passage
- 147. Passage
- 148. Passage
- 149. Passage
- 150. Northeast Dining Room
- 151. Lounge
- 152. Girls' Toilet
- 153. Air Vent
- 154. Passage
- 155. Air Vent
- 156. Boys' Toilet
- 157. Northwest Dining Room
- 158. Foyer
- 159. Terrace
- 160. Elevator
- 161. Elevator



## **Operational and psychological problems of the SMALL COLLEGE DINING ROOM**

IN AN ATTEMPT TO PRESENT SOME of the problems of the small college dining rooms, we will let them fall under two major groupings: those that may be classified as operational, the others as psychological.

Under the first group comes the present overload of students on campus. We are using the same dining room facilities that we used before the war, which means that we must schedule an early meal for both lunch and dinner in the men's dining room, which accommodates 450, as well as the women's dining room, which will seat 400.

### **FAMILY STYLE DINNERS**

Breakfast and lunch are served cafeteria style; dinner is family style with waiter service. The interval between the last afternoon class hour or athletic activity and an evening concert or program is sometimes scarcely long enough for a leisurely dinner to be enjoyed. Formal dinners are the most difficult to carry out under these circumstances. Kitchen facilities can accommodate large numbers, but the dining room seating cannot be expanded except by a double sitting.

This often creates the atmosphere of rush, noise and confusion; moreover, it is costly. Dish breakage becomes greater, and student waiters and waitresses become careless in work habits when hurried or pushed. The dean's office selects certain halls and cottages to eat at the first sitting, following a system of rotation so that all students are treated alike.

In order to replace old equipment to the best advantage and to install proper cafeteria service, it became necessary for us to do a complete reorganizing and remodeling job. We have finished this work on the women's quadrangle kitchen and are pleased not only with the beauty of the walls, floor and new equipment but with the increased efficiency resulting from our reorganization procedures. The maintenance costs of operating this kitchen

before modernization were very high, and we were able to drop four or five employees because of this change.

Menu planning and food costs are major problems. We plan our menus for a two weeks' period. The meats and desserts are generally the same in both dining rooms. However, we have found that we can serve creamed chicken to the women and roast beef



### **NELLIE GLEASON**

Director of Foods  
Grinnell College

to the men without any comment because the men do not care especially for creamed chicken and the girls are not too fond of roast beef.

Food complaints run in cycles. One year the students do not care for beets; the next year it is carrots; the next year it is something else. We feel that if students are to waste such items it is wiser to avoid putting them on the menus often. We try to plan a day's menu for 3000 calories. Students may have seconds on bread, milk, potatoes, vegetables and luncheon dishes. Salads, meats and desserts are limited to one serving per student.

Budgets that are set from three to six months previous to the school year are difficult to follow in these days when one cannot anticipate exact future trends. Daily food costs are kept for guidance in purchasing, and we turn in monthly reports to the business office. Consequently, we know at the end of the month the actual cost of food as against the budgeted cost of that date.

We break our food costs down into the following classifications: miscellaneous groceries, bakery goods, dairy products, meats and fish, fresh fruits and vegetables, and canned fruits and vegetables. By so doing we can tell, if we do run over the budget figure, whether it was meat or fresh fruits and vegetables or something else that caused our difficulty. The next step is to break that down to see whether it was price rise, consumption, waste or some other factor that caused us to be out of line.

Students pay a set rate of board, and no refund is made for meals missed. If a student is out of college for more than two weeks at a time, a refund is made for meals. A great deal of our control of food costs is due to steady labor that has been in our employ for some time. Dietitians with good food

service training and ability directing such labor deserve credit for these controls. However, such trained personnel is becoming increasingly scarce. Labor is another phase that presents

a problem. For the last six years, because of military programs and summer conferences, we have been able to provide employment to a foods staff for 11 months, instead of nine; as a

result, we have had less than a 1 per cent turnover. Few people are able or willing to accept jobs of nine months' duration. We do not have many drifters in a small town; neither do we have a supply of labor to draw from. No matter how attractive the nine months' employment may be, it probably cannot compensate financially for the other three months.

When it comes to discussing the psychological problems, the first is probably the attitude of the students. Many of them do not need to work today in order to attend college. Consequently, some are working because we need their services more than they need our financial aid. This puts them in the position of being able to quit when we impose strict standards upon them and demand from them standards that we ask of full-time employees. There are, of course, students who need work and appreciate it. Most of them feel that the student rate of pay is too low, since it does not equal some of the rates paid in town.

Students love to "gripe" to anyone and everyone about anything and everything. If they get a good audience, the gripe becomes more powerful; if the audience is thin or disinterested, the gripe peters out and is followed by another idea.

#### SOUVENIR HUNTERS

We still have souvenir hunters in college. When this fever of collecting spreads to china and silver, it can be costly. Our only method of working out this problem is to make requests in student meetings for the return of such articles. This brings back about 60 per cent of the loss.

When it comes to the attitudes of employees, I am not sure that I can explain them. Our employees seem restless, insecure and reflect emotional instability. Some of them do not know what they want, apparently; they think they want something but when they receive it, they still are confused. It is not what they wanted.

Finally, we need to take a look at our own attitudes toward these problems. There are many times when we all are completely discouraged. Growing older by the day, one becomes more philosophical about it all and has to buckle down and work for new methods of reaching the same goal. At the same time, one must keep in mind the necessity of high standards of food preparation and food service despite all obstacles.

## It's easy to put

# Artistry in Menu Making

VIVIAN A. READING

Food Service Director, Abbott Hall  
Northwestern University

THE APPEARANCE OF FOOD IS AS valuable as is its nutritive value. In cafeteria food service, it is definitely eye appeal that sells food. How many times have you gone through a cafeteria line only to find that you have taken more food than you can possibly eat? Why? Because of eye appeal—you couldn't resist selecting at least one item from each station.

Study the artistry of menu making. Give your food a new look. Stress the use of garnishes; use them boldly, in large clusters. Do not scatter garnishes. Foods must look well on the plate. Keep colors that are somewhat alike separated by foods that are different in shape and color. Garnishes of watercress, parsley, cranberries, pimiento, fruit slices, and tomatoes simplify the task.

Plate arrangement is difficult to teach. For it you need a good sense of balance, an appreciation of the artistic, and a feel for orderly combinations. You yourself must possess all of these before you can hope to train your employees to serve every plate as a bouquet.

Put something bright and new into effect in your cafeteria; try at least one new idea a day. Don an apron, go into each department as often as you can, and help prepare certain dishes, concentrating on seasonings, proper portion, and type of service and emphasizing proper garnishes with various foods. Instruct employees as to correct size and placement of garnishes on plates.

Always taste your food before time of service; never experiment on the public. The art of cooking simple foods never should be taken for granted. A recent restaurant survey shows that approximately 20 popular items constitute 75 or 80 per cent of the food business. Streamline your menu, emphasize these items, concentrate on seasonings, and serve the *best beef stew*, the *best baked hash*, or the *best macaroni and cheese*.

Dietitians are all extremely conscious of dietary requirements for a balance of carbohydrates, proteins, fats, minerals and vitamins that is necessary, but they are often bogged down by this detail and forget about the esthetic side of food service. Every food executive should have this definition of vitamins close at hand:

Vitamin A	.....	Ambition
Vitamin B	.....	Brightness
Vitamin C	.....	Confidence
Vitamin D	....	Determination
Vitamin E	.....	Enthusiasm

Nothing great was ever achieved without enthusiasm. You must possess this menu enthusiasm in order to train your employees to follow through in great detail.

Be sensitive to your patron's feelings regarding food; study his likes and dislikes and concentrate on pleasing him. The late Will Rogers was right when he said:

*Salt your food with humor,  
Pepper it with wit,  
But never spoil it with the  
cares of life.*

# HOW NOTRE DAME CUT FUEL CONSUMPTION

UNTIL A FEW YEARS AGO, FUEL CONSUMPTION for heating by the University of Notre Dame amounted to close to 10,000 tons a year. A study of the existing situation revealed that worthwhile savings could be made by installation of a system of heat control; two years ago such a system was installed.

A year's operation yielded savings in fuel totaling about 1300 tons, appreciable but not of the order anticipated. Further study of operating technic with the new system resulted in a reduction of annual fuel consumption of nearly 1500 tons a year, or nearly 2800 fewer tons than with the noncontrolled system.

In other words, the heat control system itself saved an important amount of fuel but—and this is the point to be emphasized—the potential savings accruing from a modern control system were not realized until careful thought was put into the operation.

It is the purpose of this article to describe the system as it was originally, to touch briefly on the control system installed, and to give in some detail the operating procedure that led to the 28.6 per cent savings in fuel consumption.

## GENERAL PICTURE

Fifty buildings on our campus are heated from a central plant by steam circulating through 2½ miles of tunnels, as shown in figure 1. The steam is generated in four boilers, each with a maximum operating capacity of 35,000 pounds of steam per hour at 130 pounds' gauge pressure and 410° F. steam temperature. The boilers are fired by chain-grate stokers and burn Indiana bituminous coal.

The steam distribution tunnels average 6 by 6 feet in cross section. The largest heating main, supplying 33 buildings, is 20 inches in diameter at the reducing valve near the plant and is reduced in size until it is 8 inches at the far end, about 3000 feet distant. Ten vacuum pumps, at various loca-

**BROTHER BORROMEEO, C.S.C.**

Chief Engineer  
University of Notre Dame

tions over the campus, plus the main pump in the boiler plant, return all condensate from the system to the plant. The total connected heating load is 314,262 square feet of equivalent steam radiator surface, including the loss in the tunnels, which amounts to 7000 pounds of steam per hour.

## FORMER METHOD OF OPERATION

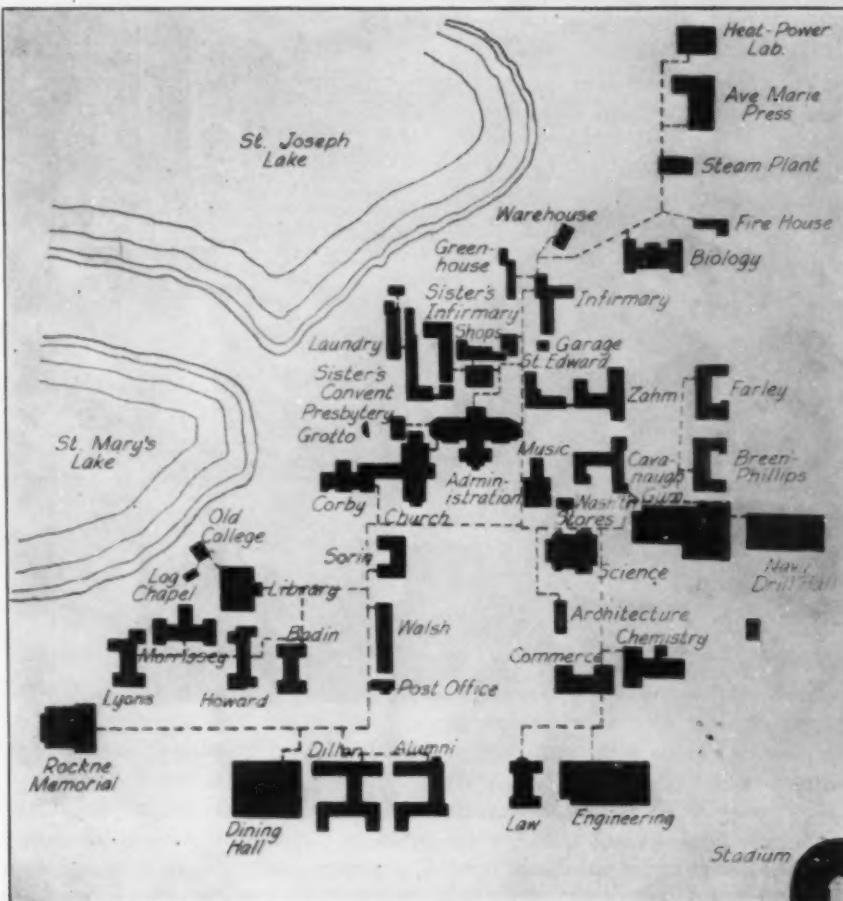
Our original method of operation was as follows: Only sufficient pressure was carried at the reducing valve to reach the ends of the system. This pressure varied from 1 pound in mild weather to 3 pounds in cold weather. Steam was left in the mains continuously during cold weather, the pressure

being dropped to about 1 pound at 10 p.m. and raised to 3 pounds at 4 a.m. From November 15 to March 15 three boilers were used. The temperatures in all buildings were uncontrolled, except for a few of the newer buildings in which a few of the rooms were thermostatically controlled.

## CONTROL SYSTEM INSTALLED

In 1944 when the coal supply began to approach the critical state, consideration was given to the installation of motorized valves at the residence halls and college buildings. This would enable heat to be shut off in buildings not occupied at night, Sundays, holidays or at any period in mild weather. However, after much deliberation it

Fig. 1. Sketch of plot plan. Dashed lines show the tunnels for piping.



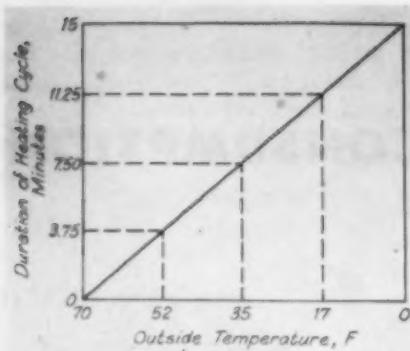


Fig. 2. Graph of time cycle.

was decided to extend the project to control the heat in the buildings as well.

The system that was finally installed is so arranged that the campus is divided into 35 zones. It consists of an outdoor thermostat and a control panel installed in the boiler plant, and in each building a relay, pressure differential regulator, indicator, control valve, and metering orifices in the radiators.

The pressure differential regulators maintain a constant pressure differential across the orifices in each radiator whenever the valve is open. The control valve is a motor operated valve in the steam line to the building, under control as described later. A typical control valve is shown in figure 3.

The control is a pulsating flow control system and works on a definite time cycle. Figure 2 shows the temperature-time cycle relation of the 15 minute cycle used. On a cycling control with more than one zone, operation may vary so that all zone valves open or close at the same time; in other words, all zones get in step.

As can be seen, this is to be avoided, as the demand on the boiler could be badly distributed with respect to time. Therefore, the control used on this installation incorporates a means of synchronizing the zone control so that when the equipment is working automatically the heat demand of different zones will never, to use an electrical analogy, be "in phase."

Mounted on the central control panel (Fig. 4) is a group of manual controls for each zone. A selector switch, one for each zone, allows the operator to (1) open the control valve for maximum heat, (2) close the valve for no heat, or (3) place the valve under automatic operation. When the control valve is under automatic operation, the percentage of heat delivered

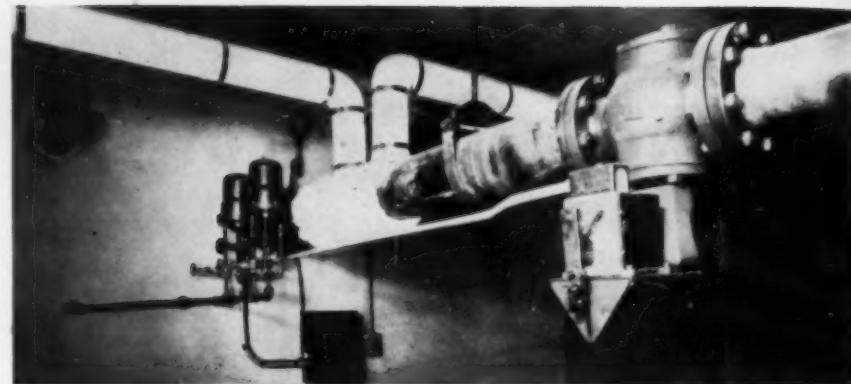


Fig. 3. Motor operated control valve in Zahm Hall.

Fig. 4. Central control panel in the power plant.

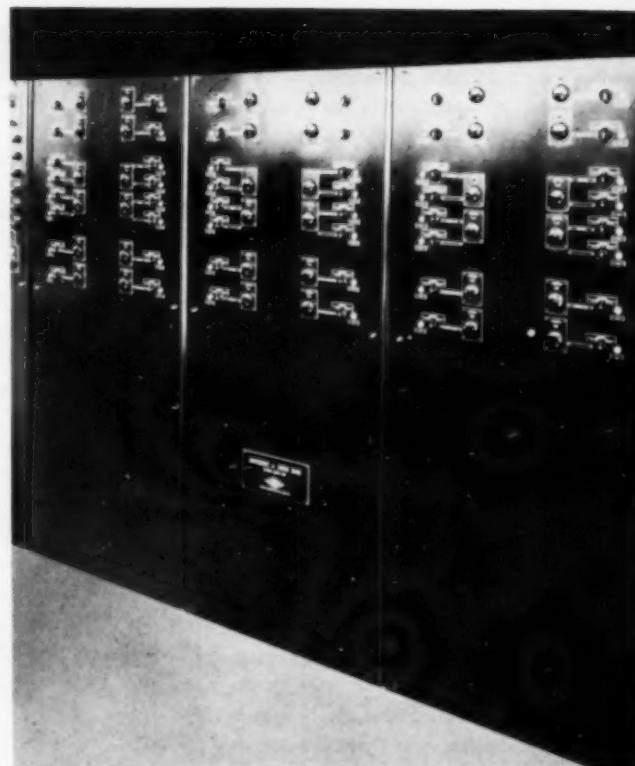


Fig. 5. Outdoor thermostat mounted on the north wall of the power plant.



can be manually increased or decreased by use of a variator, one for each zone.

Automatic operation is as follows: Inside the control cabinet there are revolving cams designed to produce the time cycle shown by the curve in

figure 2. The outdoor thermostat (Fig. 5) moves this cam in relation to outdoor temperature so that for any given temperature the control will always assume the same position and produce the same predetermined time cycle. Also, there are lights on the panel to indicate when steam is on in the heating system in each zone.

A manual temperature selector switch is used (actually a manually operated equivalent of the outdoor thermostat) so that the delivery rate to all zones can be gradually increased or decreased and the boiler load conditions adjusted to take care of this variation without the usual upsetting effect in the steam generating plant when a large load is charged on the heating mains. On the control panel in the boiler room there are also a number of separate zone control switches that permit the control of

blast heating, unit heaters, and other similar loads from the one key point.

Located in each building is a control cabinet for supplying current to the motorized control valve. Interconnecting the central control and the various building relay cabinets are electric cables installed in the tunnel system. Figure 6 shows a typical arrangement of equipment in one of the buildings.

To synchronize the loads and to prevent undue fluctuations in boiler output that lead to inefficiency, it was necessary thoroughly to analyze the load conditions and to prepare a load curve to determine the effect of increasing and decreasing various heating loads. The greatest load variation is from 10 to 15 per cent.

Although there are presently 35 zones, the control panel is equipped for 36 zones, and provisions were made for future expansion on the campus with 12 extra zone control switches. These extra zones will operate in parallel with 12 of the present automatic switches. Provisions also are made for addition to the control panel if this should prove necessary.

Figure 7 shows an indicator used in the plant. The outer numbers indicate zone sequence. The number of zones

on at any one time is proportional to the outside temperature. The outer row of lights, which are green, indicates a differential in the zone, while the inner row of lights, which are red, shows valve operation. The time lag between the red and green lights is an indication of steam response to valve operation. The area of each segment shown in the center is proportional to the steam load of the zone.

The control system handles a net load of 203,000 square feet of radiation. Individual zones range in size from 746 to 20,900 square feet of equivalent direct radiation. Five pounds' pressure is carried on the mains at the reducing valve; pressure at the ends of the mains falls to about 3 pounds in the coldest weather. The vacuum pumps are set to operate at a vacuum ranging from 3 to 7 inches. Most zones operate at a 1 pound differential at the valve.

#### EARLY EXPERIENCES WITH CONTROL

When the control system was first placed in operation, all zone temperature controllers were set at normal. The outside thermostat was switched to manual and gradually brought down to a point 20° F. or so less than the outside temperature and left that way

until it was believed that the zones had a proper warm-up.

At night and on holidays, classrooms and other unoccupied zones were cut to one-half normal heat as soon as occupancy ceased. The residence halls were cut back between 10 and 11 o'clock at night, and the outdoor thermostat was set to manual and adjusted to about 20° warmer than outside temperature and left this way until the morning warm-up.

Whenever a heat complaint was received, the individual zone was set to full heat for one-half hour and then switched back to automatic. If the demand for heat persisted, the temperature variator for the zone was stepped up.

Heat complaints became numerous to the point at which attention began to be paid to the heating system itself. The system was maintained by the university pipe shop and had no scheduled maintenance. Drip traps wide open, partially plugged radiator traps, bad vacuum leaks, and windows that would not close were just a few of the reasons for complaints.

Whereas the system had previously worked under constant pressure, buildings were not properly heated under zone control. In addition to this, ori-

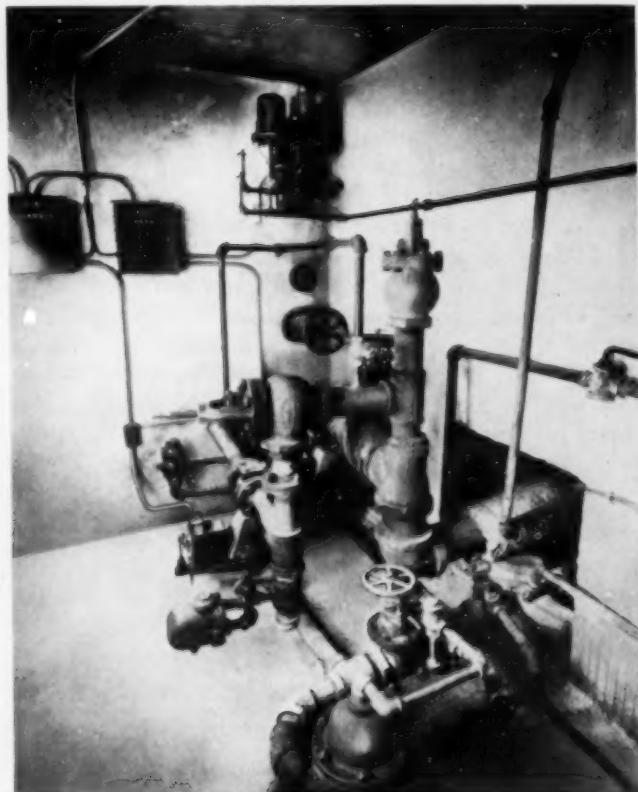


Fig. 6. Typical equipment room showing the control valve near floor at right and control cabinets for two zones on the wall.

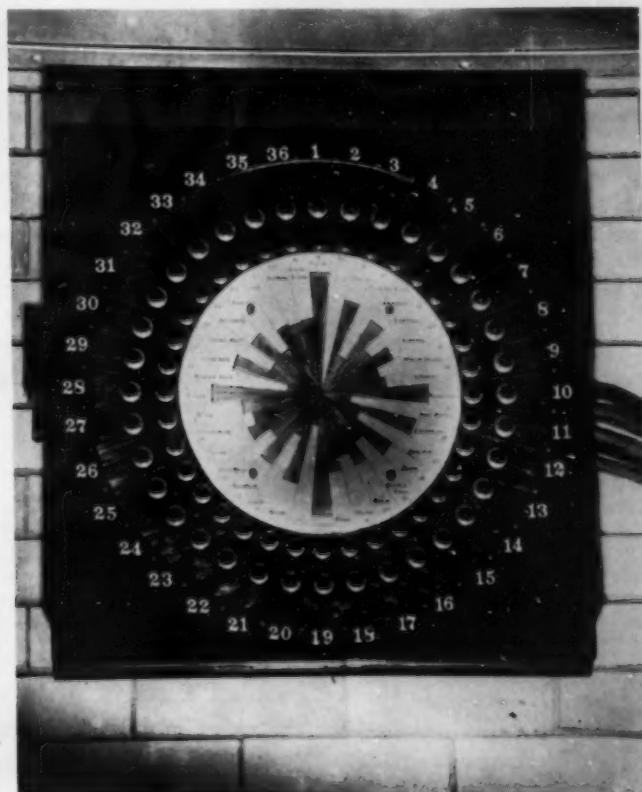


Fig. 7. Indicator showing sequence of zone operation. Outer row of lights shows differential in each zone; inner row, valve operation.

ficing of the radiators had not been completed, and the steam pressure in the mains fluctuated between 3 and 5 pounds at the valve because of sluggish reducing valves. The differential pressure on some zones also had to be raised to ensure proper heat.

The season was two-thirds gone before most of these troubles were eliminated. A closer study of the savings that were being effected or would be possible by heat control was then undertaken.

The system was placed in operation at the beginning of the 1947-48 heating season. The savings in fuel in October 1947 over October 1946 were 1.175 tons of coal per degree day. For November and December the savings over the corresponding months of the previous year were 0.090, for January, 0.120 ton, and none at all for February. It was then that it was realized that the control system would take a long time to pay for itself unless it was carefully used as a tool to accomplish the desired savings.

Consequently, night and holiday heat schedules were rearranged; morning warm-up schedules were laid out in such a way as to permit a gradual loading of the boilers; overheating in the warm-up period was eliminated, and warming up of unoccupied buildings as required, instead of several hours before, was initiated. All this brought good results. The savings for March 1948 were 0.167 ton of coal per degree day, while the April and May savings were .600 and 1.030 tons per degree day, respectively, as compared with the corresponding periods in 1947.

#### CHANGES IN BOILER PLANT

After we had worked with the control system during the first season, it became increasingly apparent that by making some changes in the boiler plant equipment important fuel savings could be realized. Work was be-

gun on this. Refractories were installed which would permit carrying peak loads for a much longer period. The combustion control was revamped from a positioning type to a metered control. This enables more efficient operation under a fluctuating load.

#### CHANGES IN OPERATION

New reducing valves were installed to replace the sluggish ones and, as a result, a constant pressure is now maintained on the heating main at all times. To obtain more nearly accurate figures in determining steam costs, flow meters were installed on various steam lines. The zone sequence on the control equipment was rearranged to produce a flatter load curve.

The second heating season (1948-49) was started with schedules laid out from experience gained during the previous season. Morning warm-up schedules were fairly uniform throughout the heating season. They were altered more in the fall and spring than in the winter months. Evening shut-off schedules were adjusted constantly throughout the heating season, the main purpose of this being to let the zone fall to a temperature during the off period that would fit the morning warm-up schedule.

The new system of scheduling heat has proved satisfactory. There was now little overheating and complaints were at a minimum.

Up to March 15 our 1948-49 fuel consumption had averaged 1.157 tons of coal per degree day, and it was apparent that this average could be maintained through the rest of the season. This compares with 1.621 tons per degree day for the season prior to installing the control, and 1.401 tons per degree day for the first season under control. Therefore, the savings in coal with the control as presently operated and as compared with no control total 2784 tons of coal per heating season of 6000 degree days.

The combustion control and high temperature furnace brick paid for themselves during the heating season. The remainder of the savings provided a good return on the heat control investment. It must be pointed out, however, that in this plant neither boiler plant equipment nor heat control would have returned as large a percentage of the investment as they did unless they had been carefully used as tools in combination to achieve the final results.

An illustration of the foregoing point is in the practice of setting the heat control thermostat to manual position and cutting back the heat supply for about one-half hour in the mornings while the laundry is starting up. This was done only in severe weather while two boilers were being operated under peak loads. The refractory enables continuous operation at high ratings. The combustion control keeps the fires in good condition, and the heat control makes it possible to control load so that short peak loads can be carried without excessive pressure drop in the steam mains.

#### CONCLUSION

Conscientious operation of any control system by the personnel responsible is essential in achieving satisfactory and economical results. Only by following schedules carefully can comfort to the occupants of buildings be assured. The planning of a schedule involves a knowledge of the characteristics of the heating system in its entirety, such as condition of piping, age and condition of buildings, together with a thorough understanding of the operation of a system.

No zone control could give complete satisfaction to each individual occupant of a building. Each human being has his own individual idea as to what constitutes comfort, so that the most that can be hoped for is that the majority will be satisfied.

## *Is a College a Good Credit Risk?*

When a college plans an expansion program, is it likely that banks will consider it favorably for issuance of a loan? Vincent J. P. Connolly discusses in October some of the factors considered by fiduciary organizations in determining whether a college may be considered a good credit risk.

# AUDIO-VISUAL CENTER

G. C. RUST

Director, Audio-Visual Instruction  
Wheaton College  
Wheaton, Ill.

IN COLLEGE INSTRUCTIONAL CIRCLES there is increasingly less debate about the value of maintaining a center of audio-visual materials in the liberal arts college. The success our armed forces had in using these teaching aids has left little question as to whether audio-visual materials have a place in the instructional program of the moderate sized college.

The more recent attitude is reflected in a statement that Dr. Norman P. Auburn, dean of university administration at the University of Cincinnati, made at a recent meeting of administrators in Denver. After discussing the fact that increased operating costs and the inflationary spiral are pressing the financial and administrative officials of colleges and universities all over the country with an increased need for more instruction at less cost, he pointed out the fact that our instructional program must become more efficient. In addition to improving the lecture system, he suggested the adding of teaching aids of visual and auditory types whenever possible.

The real area in which most of the problems and questions arise is in the operation of a college audio-visual center. The success or failure of any college department of visual materials will depend considerably upon the manner in which that department or office is administered and operated.

How the finances of the audio-visual center are carried out is a point of strong general interest. At Wheaton College this budget is made up every year early in the spring and is presented along with the general budget to the board of trustees for approval. We arrive at the figures used in plan-

ning the budget by interview with department chairmen and instructors regarding their plans for the coming year with respect to audio-visual instructional materials.

The budget thus made up does not limit the user of the material to a certain small sum of money but allows the director leeway in administering the funds so appropriated. We found that when each department chairman or individual professor made up his own budget estimates for audio-visual equipment apart from any over-all estimates there were considerable duplication and inefficiency.

The audio-visual instruction office has three separate accounts, one for new equipment, one for repairs and replacement, and another for film rentals and miscellaneous operating expenses, such as office stationery and various supplies. This system makes it possible for us to carry items chargeable to another department in the miscellaneous account for a short period of time. Specialized materials that become the property of the individual departments usually are planned for by that department as equipment purchases. Only items of joint usage are paid for out of the audio-visual instruction budget.

Another policy that has been fairly successful in our program is the rental of insured equipment to approved persons. This has provided miscellaneous expense money with which we purchase small items of additional equipment.

Any college or university audio-visual program must have at its head a director or administrator who is capable of being a professor and a



Photo laboratory and projection room.

businessman at the same time. The director will find himself confronted with public relations duties many times in the course of a school year. These contacts will stem from his activity with regard to arranging field trips or choosing equipment or other contacts with outside companies and individuals.

Should the director be full-time? The answer depends upon the individual school. Some colleges have an extensive instructional program in certain fields requiring specialized curriculum materials. Our experience has been that as the program grew it became necessary to have full-time supervision.

The administrator in question holds academic rank in the department of education and operates more or less under that department. This connection has considerable merit in view of the fact that the audio-visual instruction service thus has a closer contact with students who are preparing to teach.

#### RELIEVES PROFESSORS

The fact that the audio-visual center promotes greater efficiency in the teaching effort grows out of the service program which it makes available to the college family. This service ranges from suggestions for modernization of courses bogged down in traditional ruts through the utility aspect to the guidance of young teachers in the correct methodologies of audio-visual instructional materials. The postwar class load placed on the average college professor hardly gives him enough time for adequate course preparation, to say nothing of time to spend investigating hundreds of catalogs and film sources. On the audio-visual administrator's desk, too, falls the worry of operating the various mechanical devices and keeping them in good repair.

Oftentimes it is discovered that a college department or activity has potentialities for creating either a teaching aid or a public relations aid. We have been able successfully to produce four public relations films and several more than this number for teaching purposes. This aspect, however, should not become the chief concern in planning an audio-visual program for the college. The program is primarily a service to provide audio-visual teaching aids where and when they are most needed. The average college should not try to

maintain a program of productions to compete with large school systems or state universities.

The college audio-visual department must strive to make certain that the aids used in the classroom are closely tied in with the actual class and laboratory work. In other words, a film on earthworms is not shown when students are discussing shellfish. This matter of close integration is part of the director's task.

Under our plan the instructor presents to the director a fairly complete outline of the course material he intends to cover during the year. This outline is broken down on a unit basis to follow subject matter classifications of films or other aids. The director then, out of a fairly extensive knowledge of the materials available from various sources, suggests a program of materials to be integrated with the course. This program is sent to the teacher.

This preliminary effort is followed by a conference in the audio-visual office over the course material. The professor enlarges on what he is trying to do in certain units, and the director makes further suggestions. Little by little the choice of teaching aids evolves, and the final stage of setting down film titles and usage dates is reached.

The materials are then ordered by the audio-visual instruction office. When the report on the availability of the materials ordered has come in, the director or an assistant sends a printed form to the teacher, giving the status of the aid that he desires.

#### STUDENT OPERATORS

When the instructor is advised that his aid is available for the date he wanted it, the next step is the assignment of a student operator. One should not expect college students to give time gratis. If a man is paid a fair rate for his work, the college has the privilege of demanding a certain quality of work.

This does not mean that no teacher is allowed to operate the equipment. All of our teachers who desire to learn are given instruction. Most of them, however, prefer to have mechanical and physical details taken care of by a trained operator.

We have found a daily chart calendar\* to be most helpful. To have an advance schedule makes it possible

\*Daily Reference Calendar. Published by Schnepp and Barnes, Springfield, Ill.

for student operators to program their work according to the needs of the projection schedule.

When the student enters the classroom to project an aid, it should be done with a minimum of equipment set-up time. To facilitate this, classrooms that we use frequently for projecting motion pictures and sound slide films have been wired for sound, and permanently placed speakers have been installed.

#### SPECIAL PROJECTION ROOM

We have a special projection room, which is acoustically treated to give the best results possible. The machine has been entirely removed from the room by using a projection port; several teachers like the room so much that they use it for presenting slides and opaque materials as well. Use of this room makes previews for faculty members a pleasant preparation experience rather than a chore.

We house the motion picture projectors, several slide and slidefilm projectors, tape and wire recording equipment, and the central materials library in the audio-visual instruction office. This equipment is available for use anywhere on the campus by request.

Slide sets, slidefilms, slide projectors and opaque projectors often are placed in the location in which they are most easily used by the faculty. Central administration of this equipment has enabled us to give large benefits to the instructional program on a modest budget.

Our photographic darkroom, maintained exclusively for the production of academic materials and manned by a student assistant, has allowed us to provide specialized slides for the seminar study groups on as little as two hours' notice. The photo lab is an important part of the audio-visual program, and provision for one is strongly recommended.

The audio-visual office ends its overt participation in the learning experience at the close of the presentation of an instructional aid. The teaching tool has then been placed in the hands of the professor to use as skillfully as he has ability to do so. Our materials are not mechanized teachers; they are precision instruments for professional use. If they are wisely manipulated, enlargement, enrichment and efficiency of instruction result. Anything less will yield disappointment.

**Getting the most for the money in**

# **TEXTILE BUYING**

**L. A. BRADLEY**

Director, University Laundry Service  
University of Iowa

## **Part II**

LAST MONTH WE DISCUSSED THE problem of getting the most for the money in textile buying. Some facts about fibers are a requisite part of the knowledge of those who purchase fabrics for institutional use.

### **COTTON**

Under a microscope, cotton fiber appears like a flat spirally ribbon, varying in staple length from about  $\frac{3}{4}$  to  $1\frac{1}{2}$  inches.

The most abundant and, consequently, the most widely used of the different cotton varieties is the domestic or shorter staple. As the natural product is spun into yarn, the microscope reveals the minute protrusion of countless small staple fiber ends—their number depending upon the length of staple used. These fiber ends often account for some of the apparent linting that frequently is encountered in laundering.

For example, it takes twice as many  $\frac{3}{4}$  inch staples to make an inch of yarn as would be required with a  $1\frac{1}{2}$  inch staple. Therefore, the length of the staple helps determine the strength and quality of the yarn.

### **Length and Diameter of Principal Cotton Fibers**

VARIETY	LENGTH IN INCHES		
	Max.	Min.	Avg.
Sea-Island	1.80	1.41	1.61
New Orleans	1.16	0.88	1.02
Texas	1.12	0.87	1.00
Upland	1.06	0.81	0.93
Egyptian	1.52	1.30	1.41
Brazilian	1.31	1.03	1.17
Indian Varieties, Native	1.02	0.77	0.89
American Seed	1.21	0.95	1.08
Sea-Island Seed	1.65	1.36	1.50

The word "count" is used to describe the size of yarn used in making a certain fabric. The term "count" refers

From Hotel Textile Guide published by the American Hotel Association.

to the number of hanks of yarn, each one containing 840 yards, needed to make exactly one pound. For example, when a cotton yarn has a count of 50, it means that 50 hanks (skeins) of yarn weigh exactly 1 pound. In other words, such a yarn would be so fine that it would take 50 times 840 yards, or 42,000 yards, to weigh a pound.

This term should not be confused with "thread count," which is the actual number of yarns used in the warp and filling to make up the fabric. Thus, a thread count of 60 by 60 means that there are 60 threads in the warp direction and 60 threads in the filling per inch of fabric.

There is a close tie-up between the manufacturing process of cotton and the laundering process. It might be said that the textile process is responsible, in a large measure, for the life expectancy, colorfastness, and shrinkage of linens. Although it is true that faulty laundering methods will materially affect this life expectancy, it must be recognized that no laundering process, no matter how carefully controlled, can help prolong the life of cotton goods that have been mistreated in the textile converting process.

**Motes.** When a piece of unbleached muslin is examined, small pieces of cottonseed hulls or broken leaf particles—called motes—may be visible on the surface of the cloth. Previous to boiling with caustic soda followed by a bleach, these specks are general in all types of cotton and may cause dyeing and finishing problems unless corrected.

**Neps.** Small tangled bunches of fibers, called neps, also may appear on the surface of cotton fabric. Some authorities define neps as being a fault resulting from the presence in a cotton yarn of any fiber or material other than mature cotton staples.

**Strength.** The moisture content of cotton has a direct bearing on the

strength of yarns and of cotton cloth. Cotton is stronger wet than dry, a condition that is exactly the reverse in the case of wool and silk, which are stronger dry. However, this is not true for overbleached or chemically attacked cotton. Overbleached cotton is stronger dry than wet, as is shown by the following examples of actual samples tested.

### **Tensile Strength of Overbleached Cotton**

Sample	DRY Warp Strength	WET Warp Strength
1	15 lbs.	5 lbs.
2	18 lbs.	6.5 lbs.
3	22 lbs.	7 lbs.
4	20 lbs.	8 lbs.
5	16 lbs.	6 lbs.

Cooperation between the laundry groups and many manufacturers and finishers of textile fabrics has resulted in practically eliminating misleading claims regarding colorfastness, shrinkage and such things. Processes have been perfected, such as sanforizing, which keep shrinkage to a minimum so that, with a vat dyed fabric, one can be reasonably sure of colorfastness at fairly high temperatures. However, there still are manufacturers who either deliberately mislead the public or ignore the standards that have been set up to govern the launderability of their products.

**Shrinkage.** Statements such as "sun fast" and "tub fast" do not mean that the fabric will not shrink during the washing process. "Shrinkproof," "pre-shrunk," "colorfast" and other terms are misleading in many cases. Because of confusion regarding these terms, it is difficult to suggest any specific recommendations as a guide in making linen purchases. It is best either to make certain that the materials are marked "sanforized" or to purchase only linens that are marked "guaranteed

not to shrink more than 1 per cent."

*Stretch.* In the manufacture of cloth, it is customary to weave it in a stretched or taut condition on frames under controlled humidity. Obviously, if a manufacturer wanted to increase the yardage of the goods on the weaving machine, all he need do is add more tension on the weaving frame.

When this fabric is wetted out or washed, the tension is released and the yarns retract to their normal unstretched length. This, of course, is not the fault of laundering. On fabrics that are heavily sized or starched, it may take several washings or the use of an enzyme to remove all the sizing before the fabric has retracted to its normal length. This often is the cause of progressive shrinkage.

*Colorfastness.* In the past, there was considerable difficulty in the dyeing of silks, rayon and wool with fast colors. At present, methods have been perfected to enable manufacturers to dye these materials with fast dyes.

In the dyeing of cotton goods it is possible, by means of vat methods, to produce materials that will not be affected by normal washing. It is found that in a 50 wash test, the colorfastness of the goods washed in the commercial laundry with the use of controlled amounts of bleach is considerably better than that of goods washed in the home and subjected to drying in the sun.

#### SUN'S BLEACH SEVERE

This brings out an important point, that the bleaching action of the sun is severe and cannot be controlled, while in the laundry, where a definite amount of bleach is used, the fading is not so severe and can be controlled.

*Life.* By the exercise of control in the laundry, it generally is possible to extend the life expectancy of linens. This has been shown repeatedly in advertising claims made by retailers or manufacturers who have washed certain linens, such as sheets or towels, 300 to 400 times without pronounced effect on the wearing qualities of the washed pieces. As these fabrics were not subjected to wear, the fact that they withstood numerous washes does not indicate that they will withstand a large number of washings and long wear. The claims may mislead the purchaser into expecting unusual performance from these fabrics.

The factor of wear must always be considered when the potential life expectancy of fabrics is questioned.

#### Breaking Strength of Test Sheets

Lbs.	BREAKING STRENGTH IN 100 WASHES							
	HEAD AREA		SHOULDER AREA		HIP AREA		LEG AREA	
Warp 29	Fill 31	Warp 31	Fill 27	Warp 32	Fill 33	Warp 31	Fill 32	
BREAKING STRENGTH IN 150 WASHES								
Lbs.	HEAD AREA		SHOULDER AREA		HIP AREA		LEG AREA	
	Warp 26	Fill 24	Warp 23	Fill 20	Warp 28	Fill 27	Warp 30	Fill 28
BREAKING STRENGTH IN 175 WASHES								
Lbs.	HEAD AREA		SHOULDER AREA		HIP AREA		LEG AREA	
	Warp 23	Fill 16	Warp 18	Fill 14	Warp 25	Fill 21	Warp 27	Fill 22

Either from personal habits or occupation, the degree of fabric wear naturally varies.

Fortunately, there has been a great deal of research done to determine just what service may be expected from sheets of known specifications. A series of tests disclosed that a sheet washed 275 times has a tensile strength loss of 42 per cent. The same quality sheet washed and ironed 275 times showed a 55 per cent loss in tensile strength, or 13 per cent more than that shown by washing alone.

With a sheet having an original breaking strength of 60 pounds for warp and filling after 275 washings, the breaking strength of the sheet is 35 pounds with washing alone, and 27 pounds with washing and ironing. When a sheet reaches the point where the breaking strength is 20 pounds, it is getting close to the end of its period of usefulness.

The same 275 wash test was given a batch of sheets; more comprehensive data were obtained by including studies of the effects of washing, ironing and wear.

The sheets used in this test were of standard mill construction with a weight of 4.6 ounces per square yard; the thread count was 77 for the warp and 67 for the filling, with 4.9 per cent sizing. The breaking strength for the warp was 64 pounds and 56 pounds for the filling—generally speaking, excellent specifications for sheeting.

During the experiment, the sheets were tested at 25 wash intervals to study the effects of wear and the

points at which wear is most likely to occur. The tests proved greatest wear to be at the shoulder areas, with the head section next. Prior to these findings it was believed the foot area received the most wear. The sheets showed little change until the 100th washing. At this point, breaking strengths began to be significant and showed a definite trend.

A study of the chart above will reveal the sheets to have reached the point of discard at the filling yarns of the shoulder area after 150 washes. While the remainder of the sheet was still in good condition and serviceable, the weakened shoulder areas definitely ruled out much further use from the sheet. These figures also prove that a better balance between warp and fill originally would have enabled the sheet to remain in service for a longer period.

Had the filling been 64 pounds, or in balance with the warp, there is a possibility that it could have lasted until the 175th wash test was made, as indicated.

At the conclusion of this phase of the test it was obvious that the filling at the head and shoulder areas had been weakened to the point where darning would be a waste of time. These results show beyond doubt that balance between warp and filling is absolutely necessary to assure maximum life from the entire sheet.

To complete the test, the sheets were carried out to 275 washes. The results of the test are given in the table below.

#### Breaking Strength of Test Sheets in 275 Washes

Lbs.	HEAD AREA		SHOULDER AREA		HIP AREA		LEG AREA	
	Warp 14	Fill 9	Warp 10	Fill 7	Warp 18	Fill 12	Warp 20	Fill 16

The results of these tests proved several things:

1. Advertising claims regarding washability are meaningless if they do not include all factors that govern the final serviceability.

2. Assuming that the laundering process is under control, minimum breaking strengths, thread counts, weight per square yard, and the amount of sizing present, all contribute in determining the life expectancy.

Overbleached cotton, or cotton that has been chemically attacked, is weaker wet than dry. This is one reason why cotton that has been washed continuously over a long period will seem to give out all at once. The same gradual attacking of the cotton will occur from the bleaching action of the sun.

**Finish.** Although we are interested in the preservation of fabrics from the laundering standpoint, it must be understood that they must be of good enough quality to enable the laundry to have at least a fair chance to do its part. The laundry cannot return quality not present when purchased. In this respect, the buyer must be assured that the goods being considered are well made and of sound fabric and that large amounts of sizing are not present.

Practically all cotton is sized to a certain degree, this being necessary in order that the goods may be woven with the least amount of difficulty. In well made goods, the sizing is not in excess, but merely enough to facilitate manufacture. Heavily sized material will have a nice feel and seem heavy and sturdy enough to give long wear. After one washing, most of the sizing is removed, and the material will appear sleazy and limp with no suggestion of its original condition. The laundry cannot be blamed for this condition.

Another common practice is to impart by artificial means a smooth, glossy finish to the goods. This superficial finish adds considerably to sales appeal and appearance of the material, but how it will look after washing is another matter. This glossy finish is given to the fabric with a large roll, or calender. The presence of sizing in the material also assists in giving this finish. Naturally, during washing a large percentage of the sizing is removed, and with it goes the nice, glossy finish. Although most laundries have flatwork ironers that are quite similar to the calenders used to give the original finish, it must be understood that the purpose of these machines in the

laundry is to iron the material and not to impart the high, superficial finish that is put on at the mill.

This finish is not to be confused with the high luster that is a permanent finish with mercerized cotton. In mercerizing, cotton cloth is passed through a caustic soda bath under tension. This process swells the cotton fibers, which take on a smooth cylindrical form that is retained during washing and drying. The luster is due primarily to reflection from large groups of the smoothed fiber surfaces.

In recent years, synthetic resins have been developed for the purpose of making a glossy finish more perma-

cotton fiber, being from  $1\frac{1}{2}$  to  $2\frac{1}{2}$  inches in length. This accounts for the greater strength that linen has compared to cotton. As with cotton, the amount of moisture in linen affects the strength of the fabric; the drier it is, the weaker it is, *i.e.* linen is much stronger wet than dry. However, it seems to lose considerable strength with washing, sometimes as much as 25 per cent of its original strength.

In one series of tests, samples of linen and cotton were washed together 20 times. At the end of the test, breaking points showed that the cotton lost 3 per cent of its original strength while the linen sample lost 22 per cent.

Although the use of linen is becoming commoner, only top quality can be considered suitable for use in institutions. After repeated launderings, linen yarns may become very thin, because of the splitting off of tiny fibrils between the nodes. This is because the surrounding intercellular tissue has been weakened by repeated washings or attacked by overbleaching. Most linens in use today are made abroad because the flax grown in this country is not suitable for conversion.

In summary, linen is stronger, more pliable, a better heat conductor, and more lustrous than cotton. However, it is more sensitive to soap, alkalies and bleaches. Like cotton, it is harmed by mineral acids and requires more than ordinary care in laundering.

#### RAMIE

Ramie, sometimes known as Rhea or China Grass, is also a bast fiber like linen. The staple fiber is much longer than linen, running from  $2\frac{1}{2}$  to 18 inches. Unlike linen, it is not as sensitive to washing, and reacts more like cotton.

In a series of tests samples of ramie, linen and cotton were washed 20 times in a regular whitework formula. At the end of the washes, the samples were examined on a Scott tester. The tensile strength loss for cotton for 20 washes was an average of 3.3 per cent; for ramie, 3.2 per cent, and for linen, 16.5 per cent. It is conclusive from these tests that ramie is more serviceable for use in colleges, where frequent washings are the rule. In addition to excellent resistance to laundering, ramie has a high luster, good heat transfer, and may be mixed readily with wool or silk.

One of the drawbacks in the general use of ramie has been the difficulty in removing the fiber from the stalk,



ment, giving cotton the appearance of fine linen or percale. However, this method may not withstand much more than 50 washings. This is acceptable in the home, where 50 washings generally represent about two and a half years of laundering, but in hotels 50 washings might not represent more than three or four months of use. In the purchase of cottons with this type of finish, the buyer must bear in mind that the finish is not permanent and that laundering under controlled conditions will not preserve it indefinitely.

Cotton, generally, has a moisture content of from 5 to 8 per cent. Humidity will determine this content, which is known as hygroscopic moisture. As cotton goods are sold by weight, this hygroscopic moisture content is standardized when cotton is sold to the manufacturer. The fact that sound cotton is stronger wet than dry is one reason for variations of test results. A moisture content difference of 1 or 2 per cent will make considerable difference in breaking strength. This holds true, also, with overbleached cotton, which is the reverse of sound cotton being stronger dry than wet.

#### LINEN

Under a microscope, the linen fiber has the appearance of a bamboo cane with similar nodes and cell-like structure. The staple fiber is longer than

but improved methods indicate that ramie will eventually be an important factor in textiles.

#### WOOL

Wool is a hair fiber and under the microscope appears to be covered with small scales. The arrangement and size of the scales may vary, depending upon the type of wool. These scales give wool its luster and, according to some authorities, are responsible for felting difficulties.

This theory contends that in the presence of heat, moisture and soap, these scales interlock and felt. It is claimed that the finer the fiber, the more readily it will felt. The woolen fiber has a natural springiness and is naturally wavy, which indicates that another felting theory, more commonly accepted, may be the cause of the felting. This theory suggests that the woolen fibers intertwine and are assisted in moving among themselves and felting by the pounding action of washing, friction or other agitation. It is claimed that felting cannot occur without the presence of moisture. Thus, it is necessary to control the other factors that contribute to felting.

If too low a water level is used and, if the washer rotates at too high a speed, pounding action and agitation are increased. To a large extent, special wool washing equipment prevents felting or excessive shrinkage, and colleges with a large blanket volume should seriously consider its installation.

**Shrinkage.** Until recently, so-called shrinkproof wool was generally made by treating the woolen fabric with a bleach solution that dissolved or partially dissolved the scales on the fibers. While this process did not entirely eliminate shrinking, it did have some effect in controlling it. However, the drawback to this method was weakening of the wool by the action of the hypochlorite used to remove the scales.

A new method of treating wool with synthetic resins to reduce shrinkage has been developed that is considered more

satisfactory. Woolens treated in this manner should get careful consideration when woolen materials are purchased for institutional use.

**Types of Wool.** "Fleece" wool, which represents the yearly growth from a living animal, provides most of the wool used. In addition, there are "pulled wools," taken from the bodies of dead sheep; "reworked wool," made from rags, and "extracts," made from woolen and other rags containing cotton.

Among the reworked wools, "shoddy" is perhaps the best for reuse. It is obtained by running worsted rags, flannels and the like through machines that pull out whole individual fibers.

"Mungo" are obtained in the same manner as is shoddy, except that felted woolen rags are used. Mungo usually have shorter staple fibers, because in the picking process many are torn from the felt. Thus, they are inferior to shoddy and not so strong.

"Extracts" are obtained by treating rags containing cotton and wool with a sulfuric acid solution. The acid destroys the cotton, leaving the wool.

"Kemps" are coarse, brittle hairs, usually gray, that generally come from diseased sheep. They do not take a dye and are generally used in oxford grays, blankets and other woolen goods.

#### CHARACTERISTICS DIFFER

Reviewing the methods used to reclaim wool, it is obvious that some types of wool will have characteristics different from those of virgin wool. The best grades of shoddy are often equal to fleece wool, because during the reclaiming process the fiber is not torn or otherwise damaged. In fact, some experts claim that it is often impossible to distinguish fleece wool from good reclaimed wool.

Blankets made from mungo, extract wools, and kemp may be weaker because of the shorter staple. The physical appearance or feel may indicate this difference.

For best wear, woolen goods should be made from long staple fibers, well spun into yarns and woven into a firm fabric. There should be reasonable balance between warp and filling strengths, so there will be no tearing during washing or handling. The fact that wool is weaker wet than dry emphasizes this point.

In one series of tests it was found that cotton, linen and ramie gained up to 20 per cent in strength when wet, while wet wool lost up to 20 per cent.

**Bleaching Woolens.** Many institutions using white woolen blankets often find they turn yellow in a short period of time. In such cases, it is likely that these blankets were bleached with a reducing process and, upon exposure to air, the wool gradually oxidized to yellow.

#### PEROXIDE, AN OXIDIZING AGENT

This type of yellowing should not be confused with the yellowing resulting from drying wool at too high temperatures. Although this type of bleaching is not permanent, some authorities feel that a reducing bleach produces a nicer blanket. In order to eliminate the gradual yellowing of white blankets, many are bleached with hydrogen peroxide. As peroxide is an oxidizing agent, the blanket will not be subject to oxidation and the original white will be maintained. To produce a more lasting white, some manufacturers first bleach with hydrogen peroxide and follow with a reducing bleach.

**Shrinkage.** Shrinkage is the result of the relaxing of the fibers to their normal length when wet. Normally, with well made woolens, this shrinkage is small and usually is restored when blankets are dried in a stretched condition on frames. If a large amount of shrinkage occurs, it is likely the fabric was excessively stretched during the weaving process and dried in that condition. Consequently, when wet out, the yarns relax to their normal length and shrinkage occurs.

## Write for Volume Index

If you bind your volumes of COLLEGE and UNIVERSITY BUSINESS you will want the index to Volume 6, covering issues from January through June 1949. You may obtain your free copy by writing to College and University Business at 919 North Michigan Avenue, Chicago 11, Ill.

A RECENT DECISION<sup>1</sup> OF THE SUPREME court of Pennsylvania has given some concern to administrators of endowed colleges and universities. The court held that the land and buildings of the Ogontz School, used exclusively for educational purposes, were subject to property taxes, despite the fact that the institution had been chartered and administered as a non-profit corporation since 1928.

The court held that, "for the Ogontz School to obtain the claimed exemption from taxation it must affirmatively show that it is an institution of purely public charity. . . ." In seeking a definition of the term "public charity," the court turned to Webster's New International Dictionary rather than to long established judicial precedents. It found that public charities are restricted to "organizations engaged in the free assistance of the poor, incapacitated, distressed, etc." This definition is in sharp contrast to the much broader concept of "charity" recognized by practically all other courts throughout the English speaking world.

In 1601, the English Parliament enacted the Statute of Charitable Uses,<sup>2</sup> enumerating the purposes and objects that were considered charitable in character. This statute has profoundly influenced the law of charitable trusts in this country and throughout the British commonwealth of nations. Justice Gray,<sup>3</sup> in reviewing the effect of the Statute of Charitable Uses, gave the following definition of a legal charity:

"A charity, in the legal sense, may be more fully defined as a gift . . . for the benefit of an indefinite number of persons, either by bringing their minds or hearts under the influence of education or religion, by relieving their bodies from disease, suffering or constraint, by assisting them to establish themselves in life, . . . or by otherwise lessening the burdens of government."

In other words, charity, in the legal sense, is not confined to mere almsgiving, as the Pennsylvania court would have us believe. In the Ogontz School case, the court said that an institution, in order to qualify for tax exemption, must give its services "free of charge, or at least so nearly

<sup>1</sup>Appeal of Township of Abington, 65 A. 2nd 150 (1949).

<sup>2</sup>3 Eliz. C. 4.

<sup>3</sup>Jackson v. Phillips, (1867) 14 Allen (96 Mass.) 539, 556.

## THE TAX STATUS OF COLLEGE PROPERTY



T. E. BLACKWELL

Treasurer, Washington University  
St. Louis

free of charge as to make the charges nominal or negligible, and that those to whom it renders help or services" must be unable to provide for themselves. Few colleges and universities, except those supported by taxation, could meet this test.

The court, in the Ogontz School case, made much of the fact that the charge for tuition, room and board was \$1900 a year and that the president had received a salary of \$20,000, plus a home and its maintenance, during the depression years of 1929 through 1936. Nonetheless, the school has a nonprofit charter.

### DANGEROUS JUDICIAL TREND

The case is indicative of a trend in Pennsylvania and Connecticut to depart from prior judicial concepts. In 1908, the Pennsylvania court denied property exemption to Mercersburg College<sup>4</sup> on the grounds that its receipts from students' fees were in excess of its operating expenses.

In 1914, the New Jersey court held that the Montclair Military Academy,<sup>5</sup> originally incorporated as a proprietary school, could not justify its claim for tax exemption, since the former proprietor, when the academy was reincorporated as a nonprofit institution, had exchanged his stock in the old corporation for a purchase-money mortgage on the property of the new corporation. Rider College,<sup>6</sup> Carteret Academy,<sup>7</sup> and Princeton Country Day School<sup>8</sup> cases are also involved with

<sup>4</sup>Mercersburg College v. Poffenberger (36 Pa. Super. Ct. 100).

<sup>5</sup>Town of Montclair v. State Board of Equalization, 92 A. 270.

<sup>6</sup>City of Trenton v. State Board of Tax Appeals, 21 A. 2nd 644 (1941) 25 A. 2nd 630 (1942).

<sup>7</sup>Carteret Academy v. State Board of Taxes and Assessments, 120 A. 736 (1923).

<sup>8</sup>Princeton Country Day School v. State Board of Tax Appeals, 175 A. 136 (1934).

the fundamental problems of the transformation of a proprietary school into a nonprofit educational institution. The fact that former owners continued to receive interest on their investment in the new institutions apparently influenced the court to deny tax exemption. These decisions have initiated a dangerous judicial trend.

There has been no evidence to indicate that this judicial aberration has influenced the decisions in the other 46 states. In fact, the courts of Minnesota,<sup>9</sup> Mississippi,<sup>10</sup> Missouri,<sup>11</sup> Nebraska,<sup>12</sup> and Tennessee<sup>13</sup> have gone as far as to extend exemption from property taxation to proprietary as well as to nonprofit educational institutions. South Dakota has a liberal general exemption statute, and the South Dakota supreme court has given it a broad interpretation in the Dakota Wesleyan University case.<sup>14</sup>

"Under our present constitution and existing statutes, all property owned by religious, educational, charitable or benevolent societies, regardless of its character, extent, location or the purpose for which it is used, and all property, regardless of its character or extent, that is used exclusively for charitable, benevolent, religious or educational purposes, is exempt from taxation."

<sup>9</sup>State v. Northwestern College of Speech Arts, Inc., 258 N.W. 1 (A34).

<sup>10</sup>Board of Supervisors of Harrison County v. Gulf Coast Military Academy, 89 So. 617 (1921).

<sup>11</sup>State of Missouri v. Johnson, 113 S.W. 1083 (1908).

<sup>12</sup>Rohrbough v. Douglas County, 107 N.W. 1000 (1906).

<sup>13</sup>City of Nashville v. Ward-Belmont School, Tenn., App. 610 (1928); Ward Seminary v. City Council, 167 S.W. 113 (1914).

<sup>14</sup>Dakota Wesleyan University v. Betts, 201 S.W. 524 (1924). In re Dakota Wesleyan University, 202 S.W. 284 (1925).

# Questions and Answers

## Storing Frozen Foods

Question: At what storage temperature should frozen foods be maintained in order to reduce deterioration to a minimum?—L.F., Okla.

ANSWER: Most causes of spoilage can be stopped at 15° F, but chemical reactions proceed at lower temperatures. While a number of products can be stored satisfactorily at temperatures up to 15° above zero, it is a good general rule that holding storage should be zero. It must always be remembered that freezing does not destroy but only arrests the activities of microbes and enzymes. It does not completely protect products from vitamin loss. The loss of nutritive value, as proved by many tests, increases in proportion to the increase of temperature. Vitamin A in fruits and vegetables will drop significantly in six months' storage at 15° F. Even at zero as much as 25 per cent may be lost in peas held over from one season to the next. Vitamin C in spinach, for example, will remain unimpaired for eight months at zero but will be 25 per cent reduced in one month at 16° F. Beef can be held 15 months at zero but will show lowered quality in three months at 15° F.

Many other similar tests and examples have proved that zero storage is the temperature desirable for the safekeeping of frozen foods. It also must be emphasized that when storage temperatures are too high other desirable qualities are lost, such as the bright green color in peas.—COL. PAUL P. LOGAN, director of food and equipment research, National Restaurant Association.

## Climbing Ivy Problem

Question: Are there any specific data available as to the damage caused to buildings as the result of climbing ivy?—J.I.K., Pa.

ANSWER: I do not recall any specific data, but my own experience is that climbing vines inevitably damage the walls to which they are attached. This damage is caused primarily by the moisture that gathers behind the

vines. Further damage is sometimes done by the entrance of roots and tentacles into the mortar joints. Colleges should be interested in this damage factor. The chances are that seldom, if ever, is anything done about it—probably because we have the tradition of the "ivy-covered walls" of institutions of learning.—A. F. GALISTEL, director of physical plant planning, University of Wisconsin.

## Washing Rubber Mats

Question: How do you recommend that rubber mats be cleaned?—M.W., Iowa.

ANSWER: Use plenty of clean water and an untreated mop. Rinse with lukewarm water. Repeat the process over and over until the mat is clean. Remember that soaps, fats and greases harm rubber. Don't forget to clean the bottom of the mat as well as the top. A good way is to lay the mat on a concrete floor in a basement and wash it there.

Link mats, if not too large, can be rolled and placed on their sides to dry. Solid mats must not be rolled but can be leaned against a wall for drying. If the mat is large, be sure to use two men to turn it or it may crack.

The cleaner used on the floor can injure the rubber so be sure the floor is dry before relaying the mat.—A. L.

If you have a question on business or departmental administration that you would like to have answered, send your query to COLLEGE and UNIVERSITY BUSINESS, 919 North Michigan Avenue, Chicago 11, Ill. Questions will be forwarded to leaders in appropriate college and university fields for authoritative replies. Answers will be published in forthcoming issues. No answers will be handled through correspondence.

## Good Housekeeping

Question: What can be considered the prime factor in maintaining good housekeeping standards in residence halls and classroom buildings?—H.L., Colo.

ANSWER: Well coordinated supervision is the most important. For good housekeeping, there must be good supervisors. Generally speaking, it is not easy to find a good supervisor, especially for housekeeping work. It is often best to develop supervisors for this kind of work from within the organization.

It is important for you to recognize these maintenance supervisors, housekeepers, head janitors, or whatever you call them, as important members of the staff. You must arrange to meet with them regularly; you must counsel them, get their opinions, talk out their problems, get them to exchange ideas, and, above all, try to build up in them a professional attitude and a proprietary interest in the organization.

This last named interest, that of responsibility and the feeling of a proprietor, is not easy to develop. When a supervisor becomes interested in new techniques and in experimenting with new methods, you will gain a great deal.

Supervision demands considerable planning and, generally speaking, a supervisor in the housekeeping department needs help in this phase of the work.

Another phase of supervision that too often is neglected is inspection. It takes training and practice for a supervisor to get to see things. Some people never can see things—these persons will not be good supervisors.

Last, but not least, supervisors must be able to train employes in doing their tasks. Occasional movies showing good housekeeping technics may be helpful; more than anything else, direct demonstration and close supervision are the most practical methods of training these employes.—LEE BURNS, director of residence halls, University of Wisconsin.

# NEWS

Lion's Share of Big Gifts to Education . . . Space Utilization Studied . . . President's Reorganization Plan No. 1 Lost . . . No Federal Aid in 1949 . . . Congress Votes Aid for Stranded Chinese Students . . . Finland's Debt Payments Go to Exchange of Students

Washington Correspondent: BEN BRODINSKY

## Educational Institutions Get Largest Share of Philanthropic Monies

NEW YORK CITY.—Large scale giving for philanthropic purposes still prevails, according to a study by the John Price Jones Company, Inc., made public recently. This study shows that between July 1, 1948, and June 30, 1949, there were published records of 87 gifts of \$500,000 and more made in this country for a total of \$173,547,770.

Thirty-seven were bequests of \$500,000 and more, for a total of \$95,213,770. Twenty-five gifts were made by living persons for a total of \$26,954,000. Twenty-four were foundation grants for a total of \$50,130,000. One gift was made by a corporation and amounted to \$1,250,000.

The largest proportion of these gifts went to educational institutions; the second largest went to health causes and organizations. The causes aided by these large gifts of \$500,000 and more were as follows: educational institutions, \$120,670,144; health causes and organizations, \$26,558,626; fine arts institutions, \$9,785,000; organized social work agencies, \$7,966,000; religious organizations, \$4,818,000; foreign relief agencies, \$3,150,000, and recreational purposes, \$6,000,000.

While the generosity and interest of the wealthy are indicated by large gifts, a further study revealed that public appeals for gifts of all sizes brought a great response. The study points out that between January 1 and June 30 of this year there were published reports of 178 fund raising campaigns that were responsible for a total of \$361,597,538. In these campaigns the largest amounts went to the health organizations and organized social work. The totals raised were for the following causes: organized social work, \$154,618,050; health organiza-

tions, \$102,563,439; foreign relief, \$52,364,420; education, \$40,627,425; religious purposes, \$10,110,361; fine arts, \$1,313,843.

## Action on President's Reorganization Plans Pleases Most Educators

WASHINGTON, D.C. — Educators in Washington are generally pleased with the Congressional action on President Truman's Reorganization Plans Nos. 1 and 2.

Defeat of Reorganization Plan No. 1, under which a Department of Welfare would have been created, pleased educators because "it leaves the U.S. Office of Education where it is, instead of freezing it in a new, huge bureaucracy," as one educator expressed it.

Many educators believe that the U.S. Office of Education should be an independent agency. Had it been incorporated in the Department of Welfare, it would have been virtually impossible to give it independent status within the foreseeable future. Now, agitation for an independent Office of Education will be resumed, even though it is still firmly lodged in the Federal Security Agency.

Approval of Reorganization Plan No. 2, transferring the U.S. Employment Service from the Federal Security Agency to the U.S. Labor Department, also meets with educators' objectives. As part of the Labor Department, the U.S. Employment Service should give more and better service to job seeking college students and graduates, observers believe.

Labor officials promise that under its new management the U.S. Employment Service will be able to work more closely with schools and colleges and will produce a greater flow of labor market information, job guidance, and counseling materials.

## House Won't Consider Federal Aid This Year; Override Lesinski

WASHINGTON, D.C.—In a rarely used maneuver, a majority of the House education and labor committee scheduled a meeting on August 24 to take up federal aid to education bills, despite refusal of Chairman John Lesinski (D.-Mich.) to call the group together for this purpose. Under House rules a committee majority can override the chairman.

The 13 members who joined in the action, however, were not united on the specific bill to be approved during this "revolt" meeting. The two chief measures before the committee are the Thomas-Taft bill, which is acceptable to some Catholic members but unacceptable to supporters of the Barden bill, and the Barden bill, which has been denounced by Catholic and Negro groups. Nearly a dozen compromise measures have been introduced in the House, but these have failed to muster support from the majority needed to send a bill to the House floor for debate and a vote.

Regardless of the decision of the "revolt" meeting, the House is not expected to consider any federal aid bill during 1949. Speaker Sam Rayburn (D.-Tex.), personally opposed to any type of federal aid to schools, decided not to schedule debate on this controversial issue "so late in this session."

## Considering New Site

ITHACA, N.Y.—Ithaca College may move just south of the Ithaca city line. According to President Leonard B. Job, the college purchased a 190 acre tract "as a possible site for the development of the college." He explained that the college still was negotiating with other communities interested in providing a site.

# NEWS . . . . .

## Better Utilization of Space Is Subject of U.S.O.E. Study

WASHINGTON, D.C.—Until the day when large-scale college building programs can be undertaken, one answer to crowded campus conditions lies in more effective utilization of college buildings.

This theme is stressed in the new study, "College Building Needs," released by the U.S. Office of Education this month.

Of special interest to college administrators are accounts of space utilization programs undertaken at Ohio State University, University of Florida, and State College of Washington. In each of these institutions careful scheduling of classes, lengthening of the school day and the school week, and the management of class size helped bring about better use of classroom and laboratory space.

Educational efficiency is not necessarily lowered by lengthening the traditional college day or college week, the study reports.

"Furthermore, curriculum offerings can often be extended by the continuous use of instructional space during a two-hour lunch period, if a lunch arrangement of this kind is substituted for the practice of stopping all classes during a lunch period of one hour. Moreover, the lengthened period for serving meals may remove the need for increased kitchen, cafeteria or dining room facilities," the study concludes.

The Office of Education urges all colleges and universities to undertake studies on the use of instructional space. Such studies, the office cautions, should be governed by these criteria:

1. The spirit of an "efficiency expert" in the mechanistic sense may be less appropriate than that of a sympathetic steward in studying space utilization. Effective use of the time and energy of people (staff and students) must be balanced against efficient use of things (classroom or laboratory).

2. Significant changes in policy should not be made without faculty approval. However, specific application of the adopted policy to particular buildings or groups is the function of administrative officers.

3. Studies of room usage and class size should be made by competent re-

search personnel, that works under the direction of an administrative officer appointed by the president. The policies should be determined by a faculty committee, working with the administrative officer.

"College Building Needs" is available from the Superintendent of Documents, Washington 25, D.C., at 25c a copy.

## Big Building Program for Wabash College

CRAWFORDSVILLE, IND.—A \$1,200,000 building program for Wabash College, to include a residence hall for freshmen, a library, and improvements in the gymnasium, has been authorized by the college trustees.

The projected expansion of the plant is part of a long-range program of strengthening the 117 year old institution. Other phases of the program now in progress include additions to and strengthening of the faculty, selection of students, and financing.

The residence hall will house 185 men, the approximate size of the entering class, and will include a dining room and various meeting and social rooms for the use of faculty members and groups visiting the campus.

The new library will replace the present Yandes Library, which now houses approximately 100,000 volumes and provides space for trustee and faculty meetings. The building will provide space for expansion of the library over a long period of years and will include some facilities for student activities. The Yandes building will be remodeled for other uses.

The remodeled gymnasium will floor the entire field house, which now includes a 1/12 mile dirt running track and a large basketball court. Bleachers will be installed that can be folded against the field house walls when not in use.

## Buys Property

BOSTON.—Northeastern University has purchased the old Tufts Medical and Dental School property on Huntington Avenue valued at \$407,500. The three buildings and block of land enlarge Northeastern's new campus on Huntington Avenue to a quarter of a mile. President Carl S. Ell indicated that the buildings will be remodeled for use as classrooms and general laboratories.

## Educational Aid for Chinese Students Voted by Congress

WASHINGTON, D.C.—Both the House and Senate agree that \$4,000,000 should be made available to Chinese students living in this country to help them complete their education.

The House recorded its opinion in an overwhelming vote of 254 to 46, authorizing the Secretary of State to provide for the relief of the Chinese students "stranded" in this country. The Senate, acting on a separate bill, went farther and earmarked \$4,000,000 from foreign aid funds given to the Economic Cooperation Administration. The Senate appropriations measure, actually the more important one, was expected to reach the President for signature before September 1.

The funds will be allocated to the Chinese students through the Division of Exchange of Persons in the U.S. State Department.

The story behind the legislation was sketched by Chairman John Kee (D.-W.Va.) of the House foreign affairs committee, in these words:

"We have in America at the present time about 4000 Chinese students. They are distributed throughout 480 universities and colleges. They are without funds and are hopelessly stranded. They cannot get jobs because under the immigration laws they are prevented from competing in the labor market. Therefore, some time ago the E.C.A. diverted \$500,000 from the funds allowed for the relief of China and devoted it to an attempt to take care of some of these students. The \$500,000 is inadequate. It is estimated that in order to take care of the students for the ensuing year, it will cost in the neighborhood of \$4,000,000."

Most legislators in Washington believe that the Chinese students are anti-Communist and constitute a "bridge" between the United States and non-Communist China. In the words of Rep. Judd (R-Minn.):

"These students are about the only remaining bridge we have with a quarter of the inhabitants of the globe. I do not know of any better way we can spend \$4,000,000 than to help these students meet their next educational objective and go home with a feeling of profound gratitude and good will toward the United States."

## Social Security Bill Ready for Next Session of 81st Congress

WASHINGTON, D.C.—The House ways and means committee has approved a plan under which employes of public and private educational institutions could be brought under the federal social security system.

The House and Senate are expected to approve the measure during the second session of the 81st Congress, to begin January 1950.

The so-called Social Security Act Amendments of 1949 cover protection against needy old age, death or total disability of workers in educational institutions. Unemployment insurance is not considered feasible for these groups of workers.

Here is what the House committee proposes:

1. Professional and nonprofessional employes of privately controlled non-profit institutions would be required by law to contribute 1 per cent of their salary or wages up to \$3000. This contribution would be credited to their social security account. Upon death, retirement at 65, or total disability, these wage credits would be used in computing benefits. Social security benefits range from \$25 to \$45 a month depending upon the length of time a worker has been in the system and upon the amount he has paid in.

The employer of a nonprofit organization would not be taxed unless he signed an application stating that he wanted to take part in the system. If so, he would pay to the federal government an amount equal to the worker's contribution. In that case, the worker's wage credits would be doubled and benefits would be somewhat higher upon death, retirement or total disability.

2. Coverage for employes of public institutions would be carried out in the same manner. However, before the system could take effect the state governor would have to enter into an agreement with the Federal Security Agency. The agreement would not necessarily cover all public educational institutions within a state. It might cover only one or several "employing units" (a college, university or group of universities within a state might be defined as an "employing unit").

Employes already under a retirement or pension system within an

## WASHINGTON AT A GLANCE

WASHINGTON, D.C.—Despite protests from educators, Congress passed and sent to the White House the measure requiring F.B.I. investigations of applicants for fellowships from the Atomic Energy Commission. Author of the provision, Sen. O'Mahoney (D.-Wyo.) made one concession: He amended his provision so that the Atomic Energy Commission, instead of the Attorney General, becomes the agent who finally determines whether the applicant is disloyal.

U.S. Post Office authorities finally found the person who had been sending anonymous "hate" letters to teachers colleges urging students to give up the profession. She is a mentally unbalanced woman, authorities said but refused to give her name or address. . . . Fifty-three Japanese stu-

dents have been selected by the U.S. Army for study in American colleges and universities. Institutions with openings for a Japanese student are invited to get in touch with the Institute of International Education, located at 2 West 45th Street, New York, N.Y.

The U.S. Office of Education is compiling statistics on 1949 summer session enrollments in colleges and universities and on staff and students for 1948-49 in land-grant colleges and universities; it has begun a study on methods used to identify educational needs of adults. . . . U.S. Commissioner of Education McGrath has a "strong personal belief" that colleges and universities should offer more courses in the fine arts. He has set up an office committee to explore this proposal.

"employing unit" would be covered only if a two-thirds majority voted in favor of accepting the federal system. Federal protection would always be in addition to any other retirement or pension plan.

### Ground Broken for New Residence Hall

EVANSTON, ILL.—Ground was broken recently for a men's residence hall and commons to be situated on the north campus of Northwestern University, between the technological institute and the men's quadrangles of fraternity houses and university operated living centers. It is expected that the four-story building will be completed by the fall of 1950 at a cost of approximately \$1,230,000, not including furnishings.

In architecture and materials, the Lannon stone and brick structure will harmonize with both the institute and the quadrangle buildings. Its top three floors will be devoted to sleeping rooms for 175 men students, two to a room. The first floor will house the commons, including a main dining room with a capacity of 300 persons, four private dining rooms with a combined capacity of 100, a double cafeteria line, a modern kitchen, and a lounge. The basement will have a recreation room.

### War Surplus Booklet Released by Hollis

WASHINGTON, D.C.—Ernest V. Hollis, new chief of the veterans educational facilities program, has announced the publication of a booklet "Adapting War Surplus to Educational Use" that is available to all college administrators.

The volume deals with various uses by college personnel in the efficient utilization of material that was received through the war surplus program. It is profusely illustrated and has many suggestions as to institutional use of material that was originally developed for military and governmental use.

College administrators may obtain a copy of the booklet by addressing an inquiry to Dr. Ernest V. Hollis, Office of Education, Washington, D.C.

### Morningside Gets Observatory

SIOUX CITY, IOWA.—A new observatory housing the largest telescope in Iowa will be constructed next spring at Morningside College. The observatory will be erected under terms of a trust fund established by Dr. Arch F. O'Donoghue of Sioux City in honor of his father, Dr. James H. O'Donoghue, of Storm Lake, Iowa.

# NEWS . . . . .

## Package Housing Is Now Available to Faculty Men

WASHINGTON, D.C. — Energetic faculty members can now build their own campus homes on a pay-like-rent plan, according to the Housing and Home Finance Agency.

Under this scheme, now being promoted by a New England lumber and building materials distributor, everything is furnished for the construction of the house—from the first piece of lumber to the last drop of paint. Materials are pre-cut, and detailed plans are furnished for the buyer to use in constructing the house. The buyer would do most of the construction work himself. However, the buying of all materials "in a package" has advantages, even if construction work were to be done under contract.

Materials include lumber, millwork, windows and window frames, interior and exterior doors and door frames, sheathing paper, roofing, hardware, flashing, paint, wallpaper, insulation, nails, interior walls and ceilings, electrical wiring and fixtures, mason materials, basement columns, heating and plumbing equipment.

Cost of materials for houses for which the firm supplies plans ranges from \$3750 to \$5120, with monthly payments from \$27.28 to \$39.40.

The build-it-yourself scheme is approved for government financing under the Federal Housing Administration. First developed by the Grossman Lumber Co. in Quincy, Mass., "package housing" is spreading to other parts of the country.

## 60 Per Cent of College Costs Paid by Britain

NEW YORK CITY.—According to a recent statement by Dr. Lillian Margery Penson, vice chancellor of the University of London, government aid to higher education in Britain covers more than 60 per cent of the universities' costs during the present educational boom in England. University enrollment in England has reached a record total of 88,000. Dr. Penson is in the United States for conferences with the State Department and the Institute of International Education.

Dr. Penson will be responsible for the supervision and placement in Britain of 125 of the more than 600 American students with scholarship

grants under the Fulbright Act of 1945. Under the act scholarships are provided from the sale of American war surplus material in 20 countries.

## Federal Aid for Colleges Training for Health Professions Is Considered

WASHINGTON, D.C. — Schools and colleges which train the nation's doctors, dentists, nurses and public health workers must have immediate federal aid, the Senate committee on labor and public welfare declared in a special report last month.

The committee approved a five-year plan providing for federal grants to medical institutions for cost of instruction, scholarships and building of facilities.

Because this measure has been caught in the legislative log jam, it will not be considered by the Senate this year. However, Sen. Pepper (D.-Fla.), a ranking member of the Senate labor committee, said that he will push for its enactment at the second session.

"So acute is the financial problem of many of our medical institutions that some of these are in danger of closing down for lack of funds. Almost all need prompt financial aid," Sen. Pepper said.

The medical education bill (S. 1453) would authorize federal grants to schools and colleges in the fields of medicine, osteopathy, dentistry, nursing and public health to:

1. Meet costs of instruction. Each school would be paid \$500 per student of medicine, \$400 per student of dentistry, \$150 per student of dental hygiene, and \$200 per student of nursing education. Schools training public health administrators would be allowed \$1000 per student. Total costs would range between \$40,000,000 and \$50,000,000 a year.

2. Meet costs of maintaining, improving and building facilities. For this purpose a total of \$5,000,000 a year would be provided for five years.

The bill also provides for scholarships for students preparing themselves for the health professions. The amount to be appropriated for this purpose is left to Congress. The scholarships program is to be administered by a Federal Council on Education for Health Professions, and is to come to an end after five years.

## Says Colleges Fail to Provide "Education With a Mission"

NEW YORK CITY.—A recent study by Dr. Jacob S. Orleans, professor of education at City College of New York, indicated that frustration and emotional maladjustment are increasing among students and graduates of liberal arts colleges because these institutions are failing to provide "education with a mission."

Dr. Orleans recommends that administrators of liberal arts colleges go to the army for lessons to make their education programs functional and meaningful. He recently completed a study that led to the reorganization of the Army's Command and General Staff College at Fort Leavenworth, Kan.

Commenting on the army college's readiness to alter its education program in the light of current needs and latest developments, Dr. Orleans says that it would "take twenty years for civilian colleges to make up their minds to do this."

## Grants for Psychiatry to Start This Year

WASHINGTON, D.C. — Forty-two medical schools in the United States are to receive a total of \$1,498,333 in federal funds for training in psychiatry for undergraduate medical students, Oscar Ewing, Federal Security Administrator, announced. The first allotment will be made available for the school year 1949-50 and will be paid in annual grants over a three-year period.

The size of each grant was determined by pro-rating the requirements of the school against the funds appropriated for the purpose under the National Mental Health Act. Average amount of the grant for each school is \$35,000 for the three years.

Mr. Ewing said that all eligible schools would "eventually" be awarded grants for this development in undergraduate medical training. At the present time, however, the money is not available.

Among institutions receiving grants were: Medical College of Alabama, Georgetown University, State University of Iowa, University of Kansas, Ohio State University, University of Oklahoma, University of Texas, Wayne University, and Western Reserve University.

## Great Day Coming for Education, Says Moulton

WASHINGTON, D.C.—There is a bright century ahead for education.

The productive capacity of the United States is such that during the next 100 years it could support a population double that of the present at a plane eight times as high. And expenses for education could rise thirtyfold.

These are the conclusions of Harold G. Moulton, president of the famous Brookings Institution. Dr. Moulton carefully reviewed America's potential wealth and capacity to produce. He concluded that during the next century our food and nutrition expenditures could be increased eight times; shelter and home maintenance, 16 times; clothing and personal care, 20 times; health and education, 30 times.

Concerning education and health, Dr. Moulton concluded:

"It should be observed that a large part of the increase for health and education would be for services which involve a relatively small use of physical materials. The materials consumed in the field of education and health include chiefly textbooks and other school supplies, appliances, medicines and the like. The supplies of materials available for medicinal purposes are in general abundant—though there are a few exceptions.

"School supplies depend largely upon wood pulp; a recently developed chemical process, whereby paper is made from quick growing southern pine, has made it possible to increase the supply of this product almost indefinitely. No difficulties would be encountered with respect to the resources available for the suggested expansion in the field of health and education."

## Educational Exchange With Finland Voted

WASHINGTON, D.C.—Future payments by Finland on her World War I debt to the United States will be used to finance interchange of students, professors and educational equipment between the two countries.

A resolution providing for this unique educational experiment was passed by both Houses and signed by President Truman last month.

Finland owes \$13,408,207 and may take until 1984 to complete payments.

Under the bill, interest or principal payments will be placed in a U.S. Treasury account to pay for:

- Studies, instruction, technical training and other educational activities in the United States for students and professors who are citizens of Finland.

- Similar educational activities for citizens of the United States who wish to study or work in Finland.

- Purchase of American scientific, technical and scholarly books to be shipped to institutions of higher education in Finland.

- The interchange of similar Finnish materials and equipment for higher education in the United States.

Exchange persons will be paid travel expenses, tuition, subsistence and other allowances. The plan will be under direction of the U.S. State Department. It may be called off at any time if it does not prove in the national interest — presumably should Finland fall under Soviet domination.

## Astronomical Laboratory

CLAREMONT, CALIF.—Construction is under way on Pomona College's \$20,000 astronomical laboratory building which will adjoin the Frank P. Brackett observatory in Blanchard Park on the campus. The new structure will house the recently acquired 12 inch reflector Cassegrainian telescope that has been purchased by the college. Space in the building also will be available for classrooms and offices, as well as for a large departmental library and laboratory.

## Two Schools Share in Library Collection

NEW YORK CITY.—City College and the New York School of Social Work of Columbia University will share the books from the library of the Russell Sage Foundation, a superb collection in the field of social work.

A special 11 man committee has been studying the dispersal of the library since May, when the building in which it was housed was sold because of the high cost of maintenance.

Begun in 1882 as the library of the Charity Organization Society, in 1904-05 it was combined with the library of the State Charities Aid Association. Transferred to the Russell Sage Foundation in 1911, it has developed into its present comprehensiveness.

## Bryant Is Now Nonprofit

PROVIDENCE, R.I.—Bryant College of Business Administration is now chartered as a nonprofit institution by act of the 1949 state legislature. Bryant College was founded in 1863 and incorporated in 1916 with authority to grant degrees. For 86 years Bryant was maintained under private management.

## NAMES IN THE NEWS

Fred N. Munro has been named headmaster of Brookside School, Montclair, N.J., to succeed Theodore R. Connett. Mr. Connett resigned to accept a position as assistant director of the reading clinic, New York University.



F. N. Munro

Douglas Loughmiller Vaughan, formerly assistant treasurer of the University of the South at Sewanee, Tenn., has been named acting treasurer of the university to succeed Telfair Hodgson, made treasurer emeritus following his recent retirement.

Paul H. Burton is the new controller of the joint business offices of the four Associated Colleges at Claremont, Calif.: Pomona, Scripps, Claremont Men's College and the Claremont Graduate School. He was formerly assistant controller of George Washington University and of the university's hospital. His service as controller at Claremont augments the administration of the joint business office in which there will continue the offices of treasurer and bursar.

Dr. Gordon S. Watkins, professor of economics on the Los Angeles campus of the University of California, has been named provost of the Riverside campus of the university.



J. W. Pennington

J. Wilson Pennington, formerly auditor for Knox College, Galesburg, Ill., has been named to the newly established position of financial administrator at Newark College of Engineering, Newark, N.J. His appointment became effective immediately.

# NEWS . . . . .



E. H. B. Pratt

**Edwin H. B. Pratt**, a former master at Westminster School, Simsbury, Conn., has been named headmaster of Browne and Nichols School, Cambridge, Mass., to succeed **John Hodges**, who resigned recently.

**James Hugo Johnston**, vice president of Virginia State College, Petersburg, Va., has been named acting president until a successor to the late **Luther Hilton Foster** is named.

**Rev. John J. Lane**, C.S.C., dean of King's College, Wilkes-Barre, Pa., has been named president to succeed the **Rev. James C. Connerton**, who is retiring.

**Rev. Francis J. Boland**, C.S.C., head of the department of political science at the University of Notre Dame, has been named president of Stonehill College, North Easton, Mass.

The Very Rev. Juvenal Lalor, O.F.M., has been named president of St. Bonaventure College, St. Bonaventure, N.Y. He will succeed the Very Rev. Thomas Plassman, O.F.M., who has been president of St. Bonaventure for 29 years.

Ralph Winfield Decker, registrar and professor of New Testament literature at Boston University, has been appointed to the presidency of Wyoming Seminary at Kingston, Pa. He will succeed **Wilbur H. Fleck** next February 3, when President Fleck retires after 39 years of service to the seminary.



Clyde F. McAlister, formerly bursar of Gardner-Webb Junior College, Boiling Springs, N.C., resigned recently to accept the position of business manager at Shorter College, Rome, Ga.

Rev. Thomas C. Donohue, S.J., formerly executive secretary to the president of St. Louis University, has been appointed vice president. Father Donohue

fills a post which has been vacant since the Rev. Paul C. Reinert, S.J., was elevated from the vice presidency to the presidency last January.

Paul M. Fulcomer, an editor of *Broadcasting*, national weekly radio and television journal, was recently named publicity director of Hamline University, St. Paul. His appointment became effective in midsummer.



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Rev. Norbert P. Loehr, S.J., assistant treasurer of Marquette University, Milwaukee, succeeded Rev. Augustine W. Walters, S.J., as treasurer on August 15.



William S. Hoffman, who retired early this year as dean of admissions and registrar at Pennsylvania State College, has been named administrative consultant by Lycoming College, Williamsport, Pa., for the months of October, November and December.

Rev. Charles Martin, rector of St. Paul's Church, Burlington, Vt., has been named headmaster of St. Albans School, Washington, D.C.

Rev. C. Martin

Mother Mary Agnes, president, Notre Dame College, Euclid, Ohio, died recently at the age of 63 years. She was named president of the college in 1947.

Dr. Wallace W. Atwood, president emeritus of Clark University, Worcester, Mass., died recently at the age of 76. He was president of Clark University from 1920 to 1946 and was founder of the Clark School of Geography, which he directed until his retirement.

Philip Hull Thomas, headmaster, Mooreland School at New Britain, Conn., died recently at 52 years of age. Mr. Thomas joined the Mooreland staff in 1942.

## DIRECTORY OF ASSOCIATIONS

### Association of College and University Business Officers

#### Central Association

President: Fred W. Ambrose, State University of Iowa; secretary-treasurer: L. R. Lunden, University of Minnesota.

#### Eastern Association

President: Boardman Bump, Mount Holyoke College; secretary-treasurer: Irwin K. French, Middlebury College.

Convention: December 4-6, Chalfonte-Haddon Hall, Atlantic City, N.J.

#### Southern Association

President: C. B. Markham, Duke University; secretary-treasurer: Gerald D. Henderson, Vanderbilt University.

#### Western Association

President: Alf E. Brandin, Stanford University; secretary-treasurer: James R. Miller, University of California.

#### Schools for Negroes

President: A. I. Terrell, Winston-Salem Teachers College; secretary: L. H. Foster Jr., Tuskegee Institute.

#### Association of College Unions

President: Donovan D. Lancaster, Bowdoin College; secretary-treasurer: Edgar A. Whiting, Cornell University; editor of publication: Porter Butts, University of Wisconsin.

### Association of Physical Plant Administrators of Universities and Colleges

President: L. L. Browne, University of Arkansas; secretary-treasurer: A. F. Gallistel, University of Wisconsin.

Convention: Yale University, New Haven, Conn.

### American College Public Relations Association

President: E. Ross Bartley, Indiana University; secretary-treasurer: Edward P. Vonderhaar, Xavier University, Cincinnati.

### College and University Personnel Association

President: George W. Armstrong, University of Pennsylvania; secretary-treasurer, Ruth Harris, University of Illinois.

### National Association of College Stores

President: Herbert Hays, Berea College; executive secretary: Russell Reynolds, 189 West Madison Street, Chicago.

### National Association of Educational Buyers

President: Holger B. Bentzen, George Williams College; secretary-treasurer: Bert C. Ahrens, 45 Astor Place, New York, N.Y. Convention: May 3-6, 1950, Houston, Tex.

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Vinatred®

**VINYL CARPETING**  
**A NEW EMBOSSED PLASTIC**  
**THAT MEETS COLLEGE FLOOR REQUIREMENTS**

Here's what Vinatred is and what it does: A rugged, crack- and flake-proof vinyl plastic embossed with a slip-proof "tread," backed with fabric, in fade-resistant solid colors or patterns. Laid over sponge rubber—Vinatred is a resilient, wall-to-wall covering that is safe, clean, comfortable and attractive.

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Vinatred meets all the requirements for the floors of residence halls, cafeterias, libraries, study halls, gymnasiums, auditoriums, lounges and a dozen other heavy traffic areas in campus buildings.



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## **STYLE and DURABILITY Reach New Heights in Furniture for College Use**



From solid Cherry—modern Sikes craftsmanship recreates our rich Colonial heritage in line with the demand of all colleges for economy, durability and ease of maintenance. First cost is surprisingly low, especially when you consider the lasting charm and economy of upkeep.

The strength of Sikes Cherry inspires clean, crisp lines, gracefully-turned spindles. The hand-rubbed finish is the warm color so exclusive to Cherry,—a richness that *increases with age*. Almost indestructible surfaces, painstaking Sikes construction . . . contribute to the easy maintenance that has long made wood the most practical of all furniture materials. Only wood transforms long usage into the mellowness of added beauty.

Yes, here is durable charm adapted to demands of college living, priced in keeping with budgets that consider *lasting value*. Other pieces are available in this design . . . ask us about them, stating uses for which they are desired. And remember, there is a style and type of Sikes Furniture for every part of the college.

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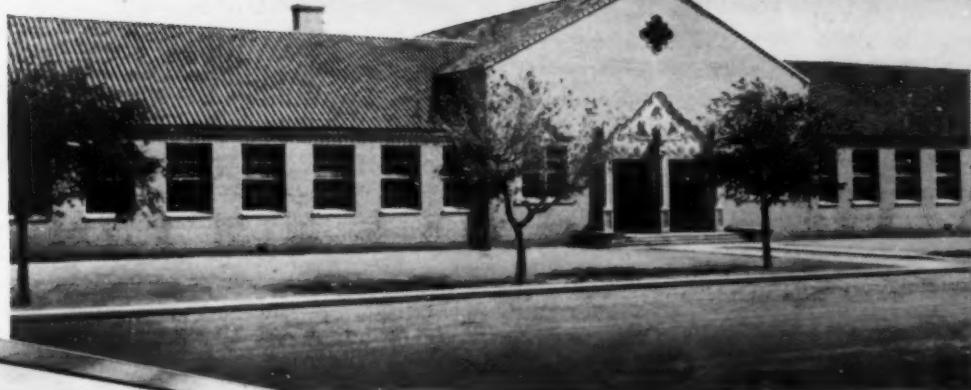
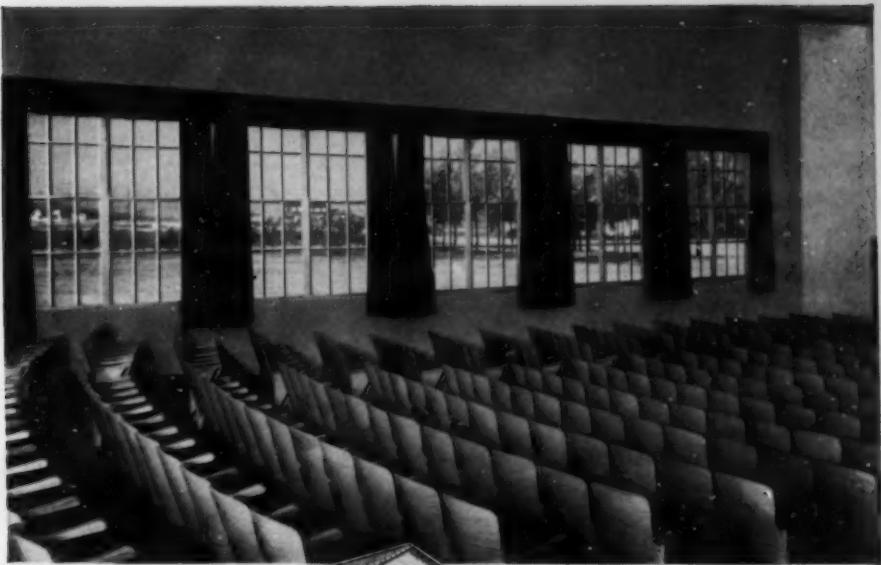
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COLLEGE and UNIVERSITY BUSINESS



Architects: Berry, Kerr & Kerr, Amarillo, Texas. Contractor: W. D. Light, Plains, Texas

No Troubles  
That a Bath  
Won't Cure!

### Adlake Windows Need No Maintenance other than routine washing

THE ADLAKE ALUMINUM WINDOWS installed in the newly-built Plains Grade School at Plains, Texas, will save the school a considerable sum in future years by *eliminating maintenance costs*. The windows will ultimately *pay for themselves* through this economy. For Adlake Windows require no painting, no maintenance other than routine washing! *And they last as long as the building!*

ONLY ADLAKE WINDOWS have the combination of woven-pile weather stripping and patented serrated guides that assures minimum air infiltration and absolute finger-tip control.

Adlake Windows never warp, rot, rattle, stick or swell. They keep their good looks and smooth operation for the life of the building.

FIND OUT FOR YOURSELF about the worry-free, no-maintenance service Adlake Aluminum Windows will give you. For complete data, drop us a post card today at 1118 North Michigan Avenue, Elkhart, Indiana. No obligation, of course.

**Adlake Aluminum Windows have these "plus" features:**  
Minimum Air Infiltration • Finger-tip Control • No Warp, Rot, Rattle,  
Stick • No Painting or Maintenance • Ease of Installation



THE Adams & Westlake COMPANY

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## IS THIS A GOOD TIME TO RAISE FUNDS?

We have heard that question often in recent months—too often and from people who should have known better than to ask it. From our convictions and from our day-to-day experience, we have answered it along this line:

**YES!** Today is as good a time to raise funds from the public as any this nation has ever experienced; better, in fact, than most years in the memory of this generation.

American economy is basically sound.

If unemployment has risen in some areas, and that fact has received headlines, the unheadline and important fact is that 40 per cent more people are employed today, and at better pay, than in our most prosperous pre-war years. These people are buying new homes, new cars, new household comforts—and they have money also for new and improved schools and hospitals. They, and not the gloomy prophets who read disaster into a 2-cent drop in the price of butter, are the people who have always made America great.

A case in point. We recently conducted a campaign to raise \$1,000,000 in the Lawrence, Massachusetts, area. Unemployment in this region has attracted national attention, rightfully, for there were 22,000 men without jobs during our campaign period. We raised \$1,112,000, without large gifts from foundations or philanthropists, for a new and necessary institution of higher education. The need was present. Funds to meet the need were available. What we supplied was the campaign direction to bring the need and the funds together.

Campaigns under our direction in the past few months have reflected no more than normal public resistance. Minor fluctuations in the national economy have had no measurable effect upon campaigns for institutions that could point to a good-service record and a genuine need for new facilities, under the direction that B. H. LAWSON ASSOCIATES give.

Is this a good time to raise funds?

It most certainly is—if you have a real and demonstrable need for funds, if you will work for your cause with diligence and enthusiasm, and IF YOU OBTAIN COMPETENT CAMPAIGN DIRECTION.

We have the answer to that last "IF." Why not ask us about it today.

Our illustrated brochure, "Fund-Raising," will be sent to you without obligation upon request to Department B-9.

**B. H. LAWSON ASSOCIATES, INC.**  
307 SUNRISE HIGHWAY  
ROCKVILLE CENTRE, NEW YORK

# "I'm Not Stupid! I Just Can't Hear You"



*"I'm the Student  
who complained"*

"...and with good reason, too! When my Lit Prof returned our exams today, he put the heat on me about getting another D. 'I never knew you were that stupid, Dick,' he said. But ever since my classes moved into noisy old Grey Hall, my grades have been dropping. We sit and listen to an echo instead of a college lecture. You simply can't *hear* what's said in those classrooms, much less concentrate or take good notes. And that's just what I told Professor Brooks!"



*"I offered the  
best solution"*

"Months before Dick complained to Professor Brooks, many faculty members had complained to the Building Committee about disturbing, distracting noise in the college classrooms and lecture halls. The Board called me in to 'quiet' one test-building before the term started. The results were excellent. And just by coincidence, about the time Dick made his complaint, they had me come back and quiet every building on campus! Yes, including beautiful-but-noisy old Grey Hall. Why *me*, especially?

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FURNITURE**

REPORT CARD	
BEAUTY	A
DURABILITY	A
ECONOMY	A



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For that "homey" feeling, you have your choice of warm, cheerful colors... rich grained or two-toned combinations. The famous *Simfast* finishes resist heat, sunlight and liquids... won't chip, mar, peel or crack!

And only Simmons *all-steel* furniture offers... one-piece fireproof construction, electrically welded supports, smooth-operating drawers that never warp or stick, never fall out... qualities of strength, durability, service.

But see for yourself... see your nearest Simmons distributor or write directly to

Illustrated above, Room No. 146. By combining a Simmons Double Desk and Double Deck Bed, this attractive dormitory room utilizes all available space. Furniture illustrated: Double Bunk DB-930, Double Desk F-142-12, Chest F-142-4, Mirror FM-61, Chair F-711, Arm Chair F-762.



Double Deck Bed demounts to make two single beds.

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**Lucille is used to the best...**

**...LUCKY SHE HAS  
CRANE SCHOOL PLUMBING**

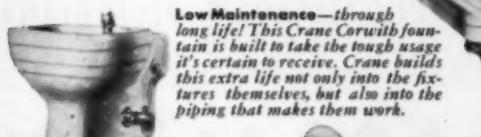
She's known Crane for years, in her own home, so naturally she's used to the best.

Lucky she can have the best at school, too! Crane school fixtures fairly sparkle with just the swish of a damp cloth. They keep their sparkle through years of hard school usage. Then, too, Crane provides such niceties as *Dial-eze* faucets that open and close at a finger's touch.

Every one of these qualities means lower maintenance for you (the captions tell you how)! Yes, low upkeep is the big feature of all Crane fixtures—and you'll find them in a type and style for any school requirement.

For full details, see your Crane Branch, Crane Wholesaler, or Plumbing Contractor, whether you plan a new installation or the modernizing of your present facilities.

**Low Maintenance—through easy replacement!** To renew one of these *Dial-eze* faucets, you just slip out the old cartridge unit, slip in the new. One unit fits all Crane faucets. Shown, the Crane Norwich Lavatory.



**Low Maintenance—through long life!** This Crane Corwith fountain is built to take the tough usage it's certain to receive. Crane builds this extra life not only into the fixtures themselves, but also into the piping that makes them work.

**Low Maintenance—through easy cleaning!** Wall-mounted toilets like this Crane Rapidway make thorough cleaning a matter of seconds. Once over with a damp cloth, and even old Crane fixtures shine like new!



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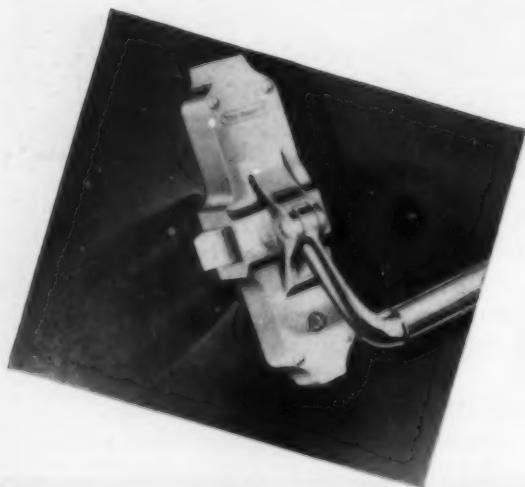
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# Von Duprin

# Healthy Students are Better Students

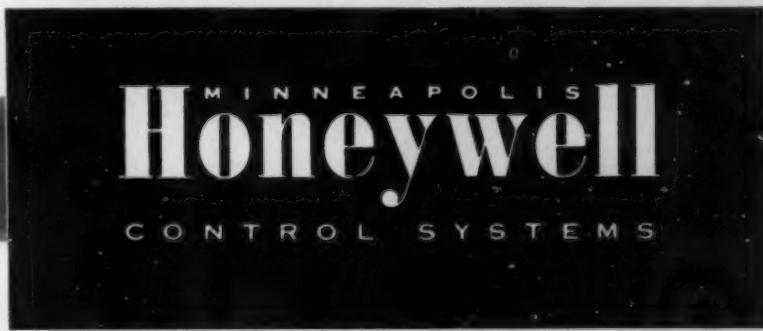


EDUCATORS HAVE long taken the lead in molding the youth of our country to the best known health standards. And it is our educators, too, who are constantly seeking and probing new opportunities to safeguard and improve health habits. Look, for example, at what has been accomplished in recent years through scientific lighting for better vision.

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However, Carrom Wood Furniture offers much more . . . in qualities essential to good institutional service. Its smooth finish, which penetrates deeply into the pores of the wood, is easy to clean and keep clean. Superior craftsmanship and basically simple, clean-cut design combine to eliminate cracks, crannies and crevices which otherwise collect dust and dirt. All joints are smoothly and permanently fitted . . . for good

construction, good appearance and good housekeeping.

Still more is yours in Carrom-built furniture. Here is a product made exclusively for institutional use. By the extra care employed in selecting and seasoning hardwoods, forming posts, legs, bed stretchers and other vital parts from solid stock and fitting joints securely, Carrom gives you institutional furniture unmatched for serviceability.

Carrom Fine Wood Furniture, made by craftsmen who "build for the decades," will meet your every requirement.

CARROM INDUSTRIES, INC • LUDINGTON, MICHIGAN

CARROM FURNITURE CRAFTSMEN

*Build FOR THE DECADES...*



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# CARROM



WOOD FURNITURE FOR  
DORMITORY SERVICE



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**M**OST students in your school have been eating Kellogg's Cereals since they were knee-high to a grasshopper. For, back in their home towns and villages, Kellogg's is the clear-cut favorite over any other brand of cereals.

Take Kellogg's Rice Krispies for example. It out-

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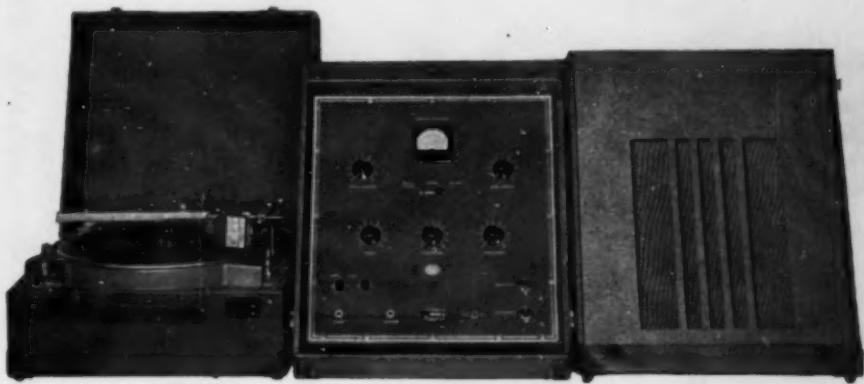
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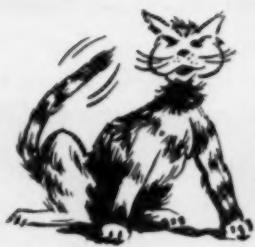
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Columbia Restaurant uses only Wear-Ever Aluminum because it always gives uniform cooking results. That's because aluminum spreads heat fast and evenly.

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Utensils

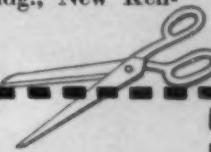
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WITH.....

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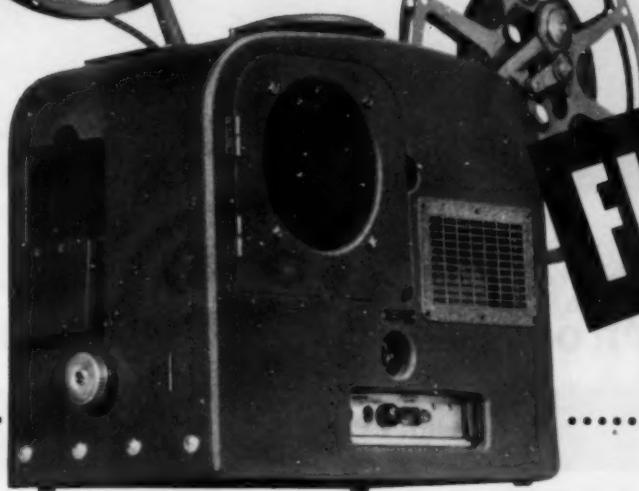
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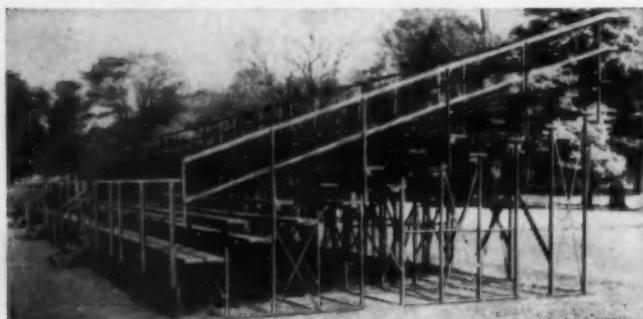
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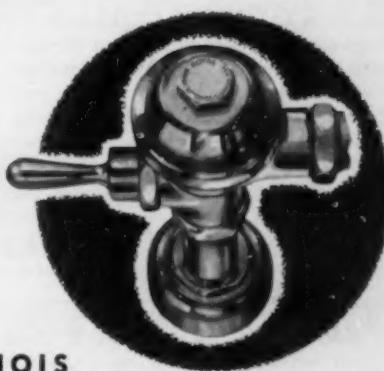
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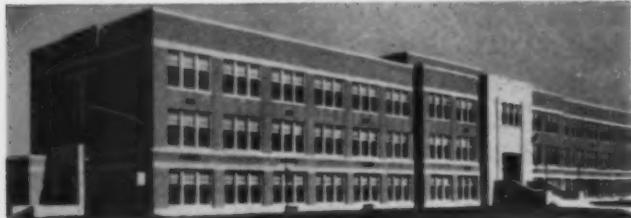


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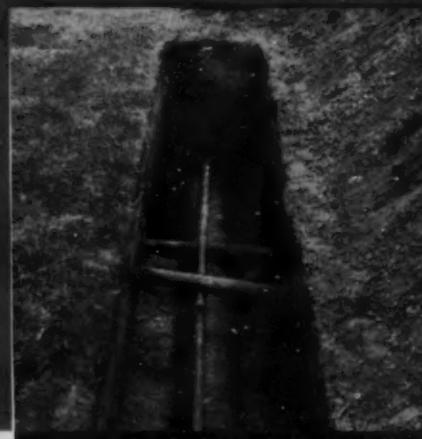
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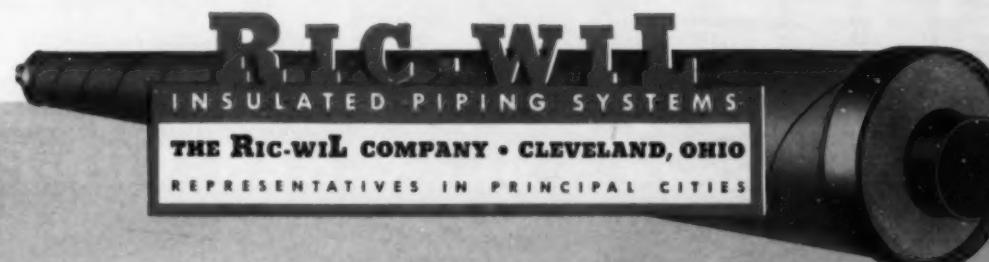
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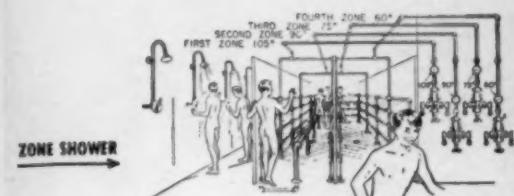
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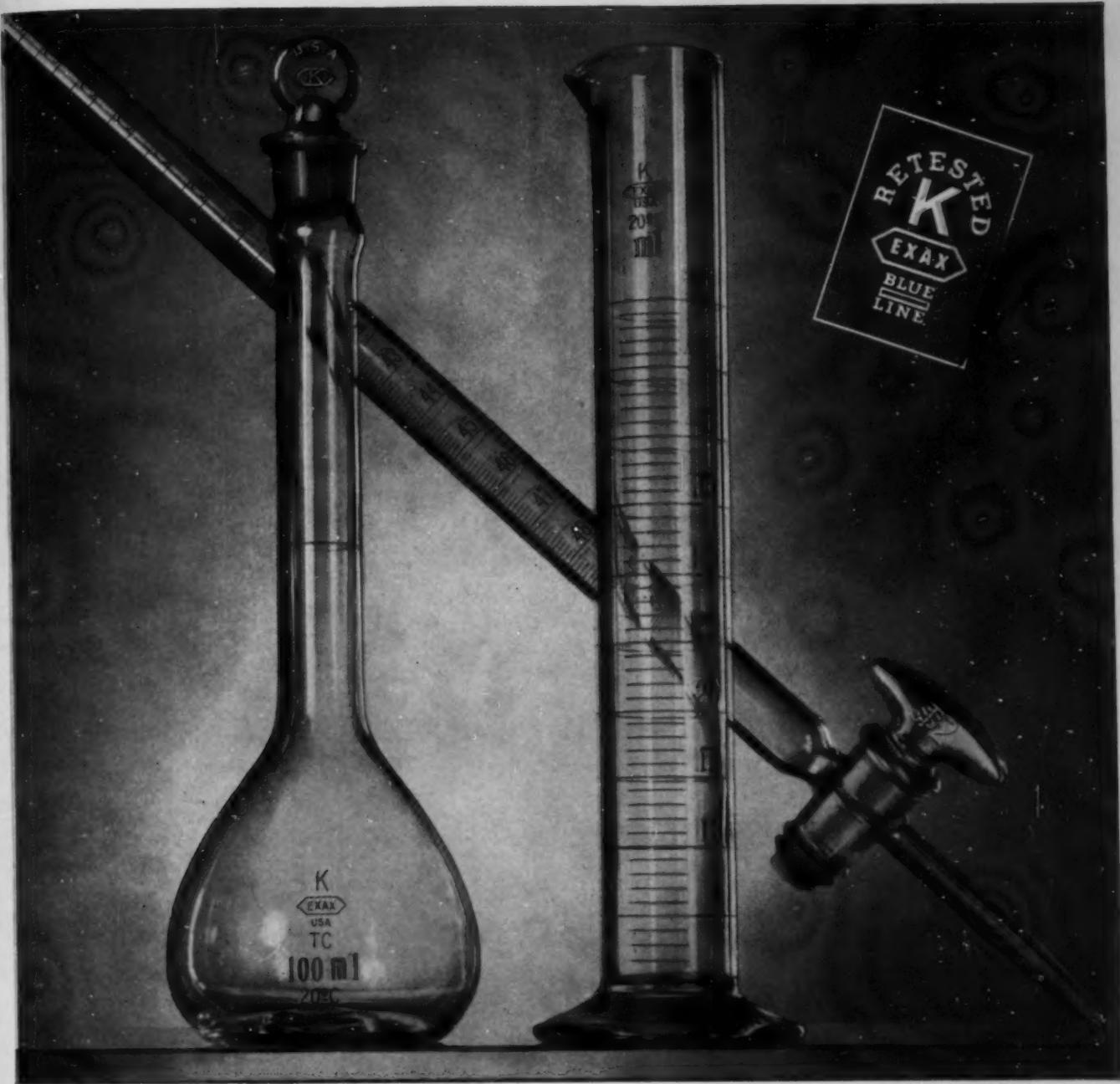
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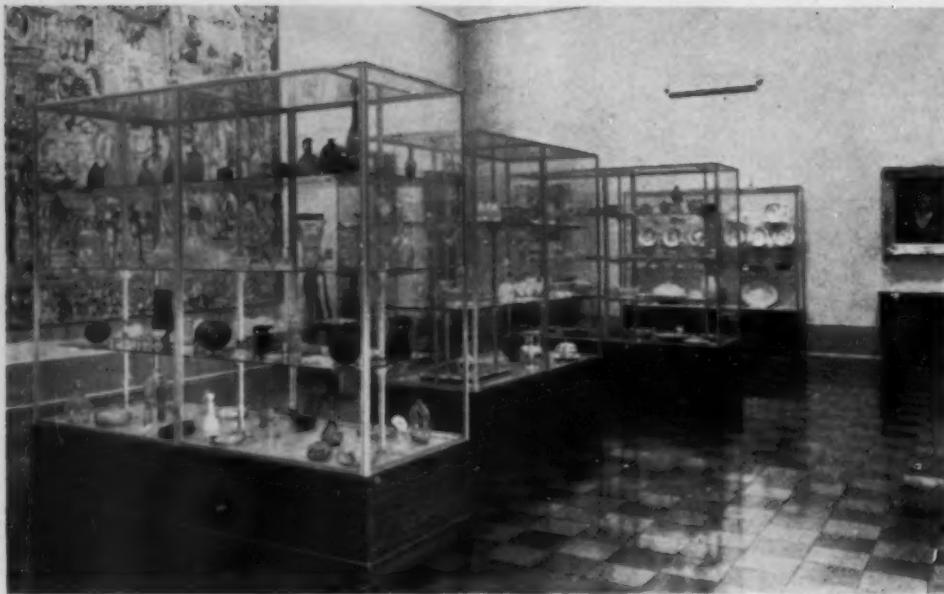
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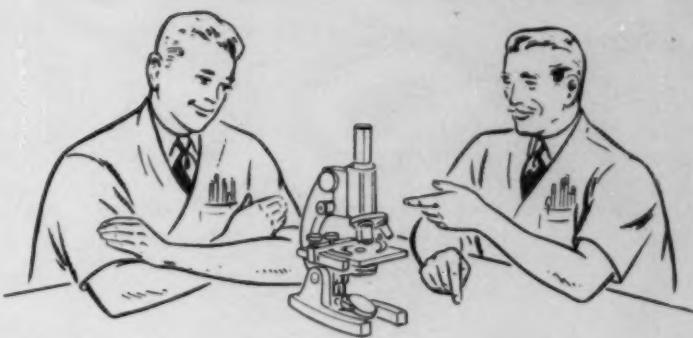
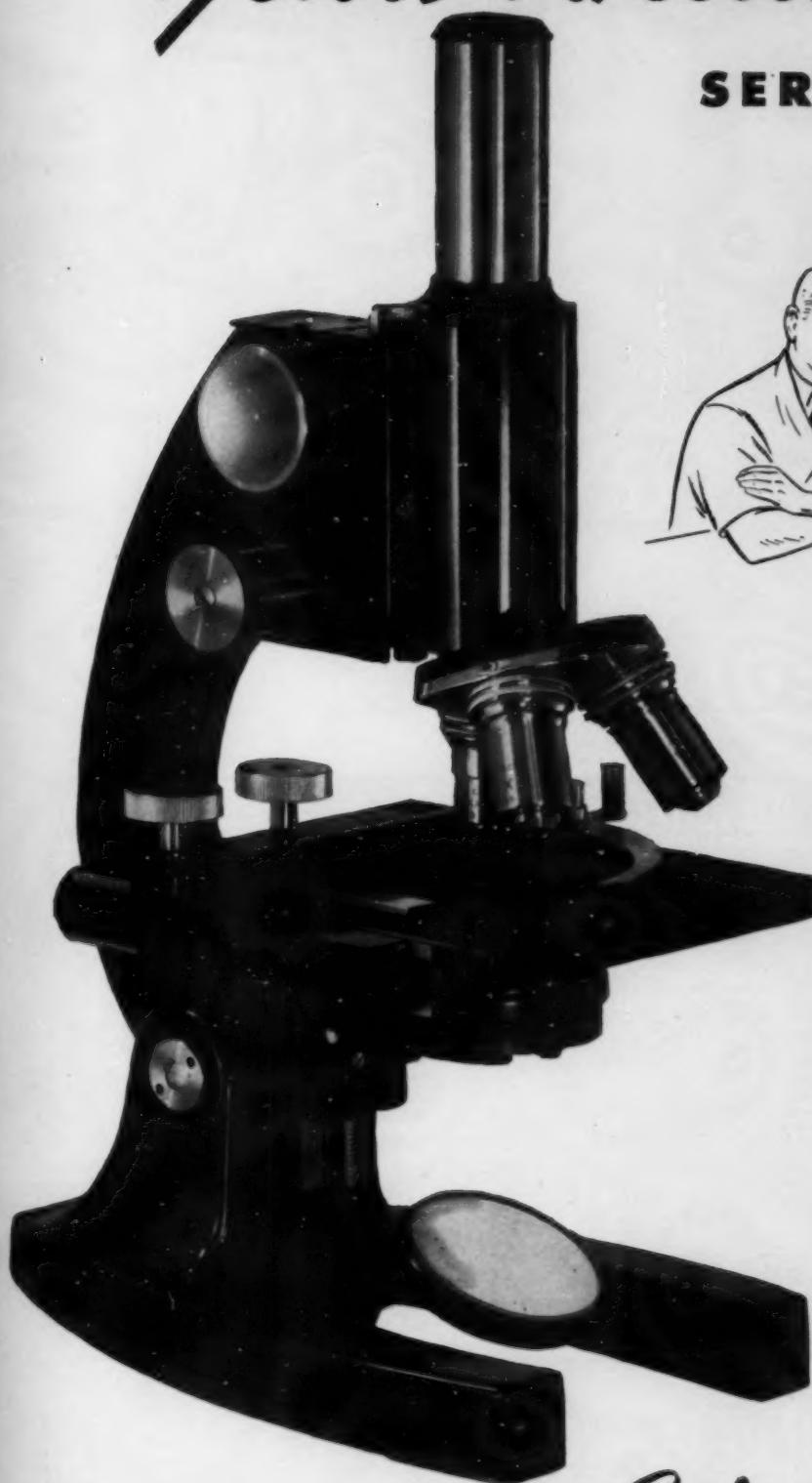
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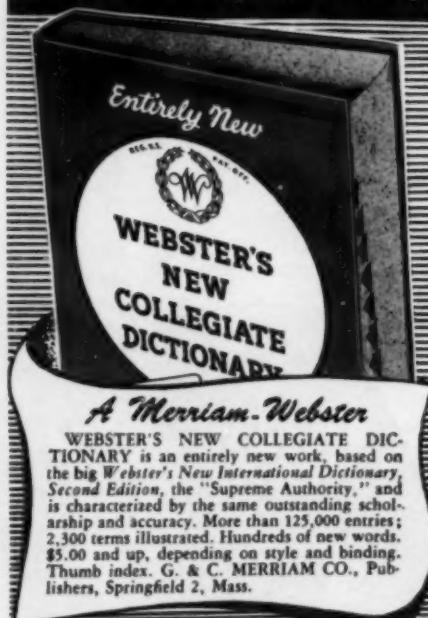
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## GOODFORM ALUMINUM CHAIRS AND TABLES



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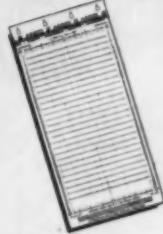
So don't let your life run on like Buzzie's handwriting. Fix up the "end of the line" once and for all by signing up today for the Payroll Savings Plan—or, if you are not on a payroll, the Bond-A-Month Plan at your bank.

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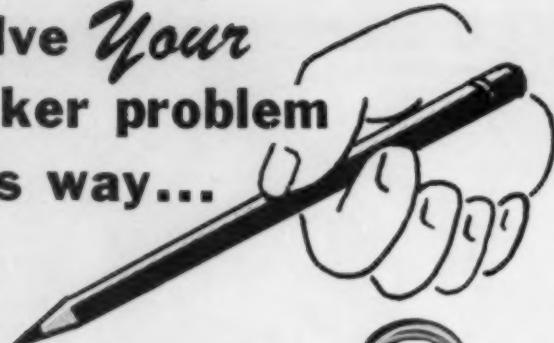
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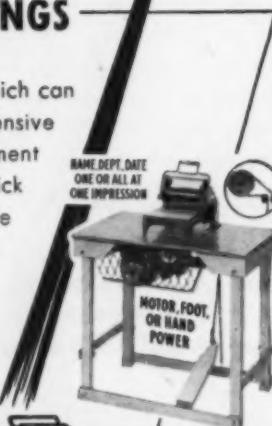
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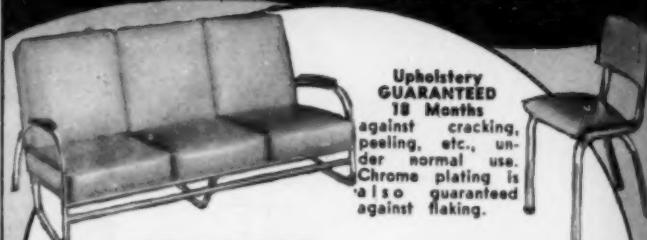


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## COLLEGE and UNIVERSITY BUSINESS

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Complete one-case unit, including projector, amplifier, lift-off case with speaker and accessories, weighs less than 29 lbs!



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Just lift off case, snap permanently attached reel arms in place — and the "Stylist" is ready to thread.



#### Simplified Operation

Central operating panel, with simplified knob controls, conveniently mounted on operator's side of projector.



#### For Small Groups

Quiet-running, easy to set up quickly, the "Stylist" is ideal for classroom and small groups.



#### For Larger Audiences

The "Stylist" delivers adequate tone quality, volume and illumination for larger audiences.

#### Actual Lift-up Weight Only 20 lbs.!

The projector and amplifier unit alone of the new Ampro Stylist weighs only 20 lbs. A young girl can easily lift it up to place on stand or table. Lift-off case with speaker and accessories weighs less than 9 lbs.!



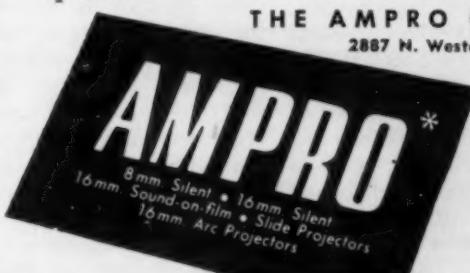
#### A new streamlined, lightweight projector combining precision quality, unusual compactness and popular low price

Here is the perfect 16mm. projector for the school field—the culmination of more than 20 years of experience by Ampro in building fine precision projectors that are used and approved by leading school systems, universities, museums and libraries all over the world.

*Astonishing light weight and compactness*—made possible by the clever utilization of the new, tough, light materials—make the Stylist ideal for easy moving from room to room—for use by small or large groups. *Tested Ampro quality design and construction*—assure ease of setting up, simplicity of operation, splendid tone quality and illumination and long, satisfactory service. *Remarkable low price*—\$325 complete—means outstanding value and assures budget approval in these economy days. Ask your dealer today for an eye-opening demonstration of this new record-breaking Ampro "Stylist"!

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# WHAT'S NEW

SEPTEMBER, 1949

Edited by Bessie Covert

TO HELP you get more information quickly on the new products described in this section, we have provided the postage paid card opposite page 44. Just circle the key numbers on the card which correspond with the numbers at the close of each descriptive item in which you are interested. COLLEGE and UNIVERSITY BUSINESS will send your requests to the manufacturers. If you wish other product information, just write us and we shall make every effort to supply it.

## All-Purpose Floor Machine

Finnell has developed a new all-purpose floor machine, low in cost and designed for small area floor maintenance.



The new machine wet scrubs, dry scrubs, polishes, applies wax, light sands, applies seal, steel wools and shampoos rugs. It is attractively streamlined in design and is only six inches high, thus permitting its use under low furnishings and beds. The 1/3 h.p. G-E motor is vertically mounted. The machine, known as the 713, is easy to operate and is designed for use wherever a 13 inch machine is large enough for the job. Finnell System, Inc., Dept. CUB, Elkhart, Ind. (Key No. 376)

## Shaking Bath

Two new constant temperature shaking baths have been announced recently by Precision Scientific Company. One has special application in biological laboratories for the shaking incubation of tissue, foods and other cultures in test tubes. A choice of three lengths of shaking stroke is possible and the rate of shaking with a full load can be varied from 0 to 192 strokes per minute. The shaking rack has a capacity of 116 test tubes.

The Precision-Dubnoff Metabolic Shaking Incubator is designed for use in biological laboratories for the incubation of tissue slices and homogenates; protein coagulations, and aerobic and anaerobic studies of tissue slices and homogenates. It also has general utility where constant temperature and shaking are needed. The incubator has a temperature range from room to 100 degrees C. and the speed of shaking can be adjusted from 50 to 150 oscillations per minute. Thirty reaction vessels can be cooled, incubated, boiled and gas equilibrated simultaneously. Precision Scientific Co., Dept. CUB, 3737 W. Cortland, Chicago 47. (Key No. 377)

## Water Softener

The Crane Company has announced the Softenall, a new two-tank water softener and conditioner designed to soften the hardest water and at the same time remove iron, manganese, light sediment and other impurities. High capacity zeolite softening material is furnished with the softener. This zeolite is permanent, can be regenerated indefinitely, and is designed to last for the life of the installation. The Softenall is made in 4 sizes with softening capacities varying from 30,000 to 90,000 grains. The units are compact, varying in size of occupied floor space from 16 by 26 inches to 22 by 38 inches. Crane Co., Dept. CUB, 836 S. Michigan Ave., Chicago 5. (Key No. 378)

## Yardage Line Markers

New rubber football yardage line markers, combining safety with long-range visibility, have recently been announced by Voit. Made of long wearing black rubber with washable white fabric numerals molded into the face, the markers are practical and serviceable. Handy carrying grips are built-in for easy handling and the markers have no metal, no sharp corners, and will bend or collapse under weight, thus avoiding the possibility of injury to players. They lie flat for storage and are easily assembled and disassembled. A standard set consists of two sides but the design and a rubber hinge coupling principle permit three or four sided assembly if desired. W. J. Voit Rubber Corp., Dept. CUB, 1600 E. 25th St., Los Angeles 11, Calif. (Key No. 379)

## Prismatic Glass Block

Especially designed for classrooms in those parts of the country which have the greatest sunlight, the Insulux Glass Block No. 352 makes possible low brightness contrasts. When used in the conventional classroom, maximum brightness contrasts remain within the comfort range at all points of the room where students are seated in the usual manner.

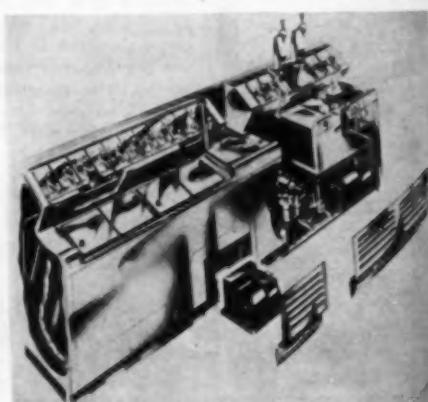
In outward appearance the New No. 352 is no different from the Insulux

No. 351 prismatic glass block, hence the two designs can be used on different exposures of the same building. American Structural Products Co., Dept. CUB, Toledo 1, Ohio. (Key No. 380)

## Sectional Soda Fountain

A new sectional "Bobtail" soda fountain unit has been announced with three custom built stainless steel sections compactly constructed to fit individual requirements. It is designed to fill the need for volume soda fountain operation in a minimum of space. The basic complete unit is 6 feet 10 inches in size, consisting of a 4 foot 1 inch dispenser section and a 2 foot 9 inch three compartment sink section which can be placed at either end of the dispenser section. Units are available as individual sections so that other utility units can be installed between them.

Some of the outstanding features of the new unit include: all-steel, sectional interchangeability; sanitation features conforming to health codes; all-dry refrigeration; top and work surfaces of one-piece die-stamped stainless steel; syrup pumps of all-stainless steel, de-mountable and easily disassembled without tools; all-metal welded body; pure corkboard sealed insulation; overflow outlets on back of sink, inter-connected to drain; separate clean and soiled stainless steel corrugated sink drainboards, and simplified plumbing, factory inter-



connected with one waste outlet and one water inlet on dispenser unit. Seco Company, Inc., Dept. CUB, 5206 S. 38th St., St. Louis 16, Mo. (Key No. 381)

### Sealit

Sealit is the new name adopted for a liquid cleaner for marble and terrazzo. It is especially formulated to clean and maintain non-resilient surfaces safely, efficiently and economically and is designed for use on marble, terrazzo, travertine, slate, quarry tile, ceramic tile, flagstone, cement and similar materials. The product cleans the floors and seals at the same time, thus simplifying maintenance. Franklin Research Co., Dept. CUB, 5134 Lancaster Ave., Philadelphia 31, Pa. (Key No. 382)

### Automatic Justifying Typewriter

The new Underwood Automatic Justifying Typewriter combines the features of the standard Underwood with those of the carbon paper and fabric ribbon attachment machine and incorporates a new built-in feature to provide an even right-hand margin on typewritten copy. It is so constructed that it does not interfere with use of the machine for regular typing.

Justifying is accomplished by the new Underwood variable pitch rack which extends beyond the carriage on both sides of the machine. The machine is designed particularly for use in the preparation of bulletins, forms and other material to be reproduced by any method. Underwood Corporation, Dept. CUB, 1 Park Ave., New York 16. (Key No. 383)

### Micro Library Reader

The development of microcards, the system by which the complete text of a book, pamphlet, treatise and the like is reduced in size and reproduced on one or more cards of standard library catalog size, requires a micro reader for magnifying the material for reading in libraries which have adopted this space



saving system. The Micro Library Reader is such a device and is the result of many years of engineering and optical research to achieve the best possible

magnification of microcard material with uncomplicated operation.

The machine is so designed that the microcard is easily placed by simply lifting the lid and dropping it into the card holder. A knob on top of the lid moves the card vertically and horizontally so that any page can be found at once. A knob on the right side is turned to give clear focusing on the screen. The Reader is sturdy in construction, simple in operation and is designed for long service. Little maintenance is required and its smooth functional lines make it a not unattractive addition to the library. Northern Engraving & Mfg. Co., Dept. CUB, La Crosse, Wis. (Key No. 384)

### Versa-Tile Flooring

A new all-purpose floor tile has been developed which is designed for use below grade, on grade and above grade. It can be applied over concrete or wood floors and on top of old or new flooring. Known as Bonny Maid Versa-Tile, tests of the new product have shown it to be unaffected by fats, grease, gasoline, abrasives, alkaline moisture, milk, harsh soaps, cigarette burns and other materials and to be shatterproof, resistant to indentation and not to become brittle with age.

Available in 24 patterns, Bonny Maid Versa-Tile is made in  $\frac{1}{8}$  inch and  $\frac{3}{16}$  inch gauge, die-cut tile sizes, feature strips and a complete range of border sizes. The binder used in Versa-Tile is mixed with other materials and pigments so that the color and design are the same throughout the depth of the tile. The tile is sanitary, resilient, vermin-proof, non-skid, and has attractive marbled designs. Bonafide Mills Inc., Dept. CUB, 295 Fifth Ave., New York 16. (Key No. 385)

### Plastic Door Plates

Kickplates and push plates are now being fabricated from a newly developed grade of laminated plastics known as "Textolite." The material has excellent mechanical strength and resistance to abrasion and tests have proved that it does not tarnish, can be wiped clean without polishing, is resistant to most cleaning agents, degreasing solvents, disinfectants, floor wax emulsions, insect sprays and kitchen greases and is unaffected by boiling water. Tests of exposure to extreme humidity conditions resulted in dimensional changes of no more than 1 per cent. The new G-E textolite door plates are furnished in any thickness and lateral dimension specified, with edges beveled and screw holes drilled, and are available in both black and brown. General Electric Co., Dept. CUB, Pittsfield, Mass. (Key No. 386)

### Slide Projector

The new GoldE Reflex 300 watt slide projector is built into the case and is designed for use with  $2\frac{1}{4}$  by  $2\frac{1}{4}$  inch



color slides. A feature of the new unit is the noiseless, powerful blower cooling which keeps the entire machine cool to the touch and at room temperature at the slide aperture. The integrally designed housing is precision die cast of aluminum and the optical engineering of the Reflex is built around the triple condensers, which fit into machine guides with a heat absorbing glass that effectively prevents any heat from reaching the slide. The new GoldE Rotilt permits immediate tilting to the projection level, and the lateral tilt, built into the bottom of the case, gives accurate control. GoldE Mfg. Co., Dept. CUB, 1220 W. Madison St., Chicago 7. (Key No. 387)

### Kromet for Dishwashing

A new product, designed to combine excellent dishwashing action with bactericidal properties, obtained by the gradual release of active chlorine from a special organic ingredient, has recently been announced. Known as Kromet, the new product is mild, pleasant in odor, free rinsing and economical. It is designed to help in keeping bacteria count low on dishes washed either by the simple wash and rinse treatment or when in addition they are rinsed in a germicidal solution. Wyandotte Chemicals Corp., Dept. CUB, Wyandotte, Mich. (Key No. 388)

### Water Purity Indicator

Quick and accurate testing of distilled and de-ionized water for purity is now possible with the new Stokes Water Purity Indicator. Operating on the principle that conductivity of water is directly proportional to its ion content, the unit makes possible an easy, quick purity test daily, hourly or whenever needed. The F. J. Stokes Machine Co., Dept. CUB, 5830 E. Tabor Rd., Philadelphia 20, Pa. (Key No. 389)

### Magnetic Ribbon Recorder

The new portable Model BK-414 "Soundmirror" Magnetic Ribbon Recorder is designed to record and re-



produce high fidelity recordings easily and simply with life-like fidelity, quality and exactness. Recordings are made through the microphone or directly from a radio or record-player and played back through the compact amplifier unit. The new model enables teachers or student assistants to make recordings of all types with professional quality after a minimum of operating experience.

Simplicity of operation and threading makes the unit easy to handle and it features a new simplified single control for ribbon movement with automatic rewind. Thirty-minute recording reels are small in size and easy to handle and store. Reels may be reused for unlimited successive recordings as previous recordings are automatically erased when a new recording is made. Input and output jacks enable the operator to play the "Soundmirror" through an external or auxiliary speaker, a public address system, an external amplifier and speaker system or a radio amplifier. The unit can serve as an integral part of the school public address system and is easily portable for use where needed. The BK-414 is approved by the Underwriters Laboratory. The Brush Development Co., Dept. CUB, 3405 Perkins Ave., Cleveland 14, Ohio. (Key No. 390)

### No-Gear Peeler

The new Blakeslee No-Gear Peeler is vertically designed with the motor mounted in the base and protected from damage and moisture. A sink-high, 4 position door permits direct discharge of vegetables into the sink. The abrasive side-wall and peeling disc is designed for fast, efficient peeling. The new model is designed for more efficient and quiet operation, easier maintenance, streamlined appearance and to save floor space because of the vertical construction. The machine is available in 3 new models, each finished in Duco or in stainless-clad construction. G. S. Blakeslee & Co., Dept. CUB, 1844 S. Laramie Ave., Chicago 50. (Key No. 391)

### Paper Cup Dispenser

A new recessed water cup dispenser for use with paper cups has recently been developed. Designed to be mounted flush with the finished wall surface, the dispenser cannot be broken or removed from the wall. Made of metal with a clear plastic window to indicate when in need of refilling, the dispenser is available in satin-chrome finish or in prime paint finish. Mechanically foolproof, it contains no weights, springs or other movable parts and can be adapted for use with 4 sizes of flat-bottom Dixie Cups and 2 sizes of cone-shaped Dixie or Vortex cups. Designed for installation in new buildings, it can also be installed with relative ease in existing buildings as part of a modernization program. Dixie Cup Co., Dept. CUB, Easton, Pa. (Key No. 392)

### Wall Covering

The Varlar stainproof wall covering line has recently been improved to include 24 new additions—15 entirely new styles and 9 plain tints, plain tints not having been available up to this time. The line now includes 117 styles. Varlar, Inc., Div. of United Wallpaper, Inc., Dept. CUB, Merchandise Mart, Chicago 54. (Key No. 393)

### Anatomy Charts

The heart, the lymphatic, nervous, digestive and urogenital systems and the topography of organs are subjects covered in additional charts in the interesting new series developed by Denoyer-Geppert. Unusual in that the originals were done in oils, in full color, the series consists of 10 charts, each 42 by 62 inches in size, the figures drawn against a light blue background for accentuation of anatomical detail. As with the charts in this series described earlier, these were painted by P. M. Lariviere and are available with plain rollers top and bottom or with spring roller mounting.

On the chart of the heart, four separate figures show the heart very much enlarged to present it in full detail. The topography of organs chart shows both male and female. In that of the lymphatic system, an almost life-size central figure is used to show the most important lymph vessels and lymph glands while details of a lymph gland are shown greatly enlarged. Similar treatment is given the nervous system, the digestive system and the urogenital system and the careful use of color has added to the value of these charts for teaching and study. Denoyer-Geppert Co., Dept. CUB, 5235 Ravenswood Ave., Chicago 40. (Key No. 394)

### Wet or Dry Vacuum Cleaner

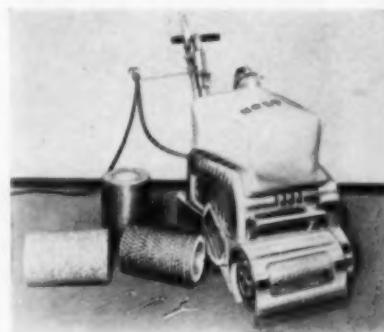
A new wet or dry vacuum cleaning system has been developed for institutional use which is powerful, efficient and easily portable. It operates without belts, dust bags or brushes and with available attachments the machine will handle a wide range of cleaning problems. It is equipped either as a dry pick-up machine or, with an adapter, as wet and dry pick-up machine. The tank has a capacity of 1½ bushels or 9½ gallons.

The sturdy, compact design and low center of gravity make the machine easy to maneuver in confined areas. Four hard rubber swivel casters also add to its maneuverability. The construction is such that the machine is quiet in action, attractive in appearance and designed for long life. All seams below the water line are double electro-welded and the tank is lined with a corrosion resisting finish. Standard equipment includes flexible hose, steel cleaning wand, floor tool and upholstery tool. Various tools for special cleaning applications are also available. The American Floor Surfacing Machine Co., Dept. CUB, 518 S. St. Clair St., Toledo 4, Ohio. (Key No. 395)

### Holt All-Purpose Machine

The Holt Tandem Motored All-Purpose 12 Steel Wooling Machine is a dual motored machine designed to work fast and to do a steel wooling, cleaning, sweeping, polishing, scrubbing, scaling or degreasing job on any type of floor. Attachments for these uses are quickly and easily interchangeable. The steel wooler is designed for use on wood floors and also to take stains off marble, terrazzo and other stone and mineral floors.

The new machine is modern in design and in operating procedure. The Holt Automatic Belt Tightener, High Suction Vacuum and other Holt design and construction features are incorporated in the new machine. It is built



for long, dependable, trouble-free operation under rugged operating conditions. Holt Mfg. Co., Dept. CUB, 651-20th St., Oakland 12, Calif. (Key No. 396)

### "Unitized" Test Benches

Prefabricated steel units have recently been developed to provide laboratory test benches in any length and in a variety of designs for use at test stations in student health service. The all-steel units are available in 18 different styles, including drawers, cupboards, sinks, tables, storage cases and the like. All units in the line are designed to be joined easily to one another to form test benches either 30 or 36 inches high. Units vary in length from 2 to 5 feet and a newly developed plastic-impregnated stone, "Kemrock," is used for bench working surfaces. This stone is tough, smooth, black and highly resistant to ovens and chemically corrosive materials.

The "unitized" test benches provide heavy steel furniture designed especially for urine, blood, pneumothorax, metabolic, microscopic and other laboratory and health service tests. Fisher Scientific Co., Dept. CUB, 714 Forbes St., Pittsburgh 19, Pa. (Key No. 397)

### Stainless Steel Extinguishers

Buffalo fire extinguishers are now available in all-welded stainless steel. The new material makes the extinguisher stronger even though it is lighter in weight and hence easier to handle. The permanent finish simplifies maintenance and the new model is available in both Soda-Acid and Foam types. Buffalo Fire Appliance Corp., Dept. CUB, Dayton 1, Ohio. (Key No. 398)

### Portable Automatic Phonograph

The new Knight 45 RPM automatic changer electric phonograph is designed for use with the new 7 inch 45 RPM records. The new type changer is positive-acting and has a minimum of moving parts. Records are changed in less than 2 seconds. The only controls are a



combination on-off switch and volume control, tone control and start-reject button. The built-in amplifier and baffled

dynamic speaker are designed for rich tone quality and ample power. The unit is attractively housed in a compact, portable case covered in brown rawhide fabric. Space is allowed for carrying records and the unit weighs only 12½ pounds. Allied Radio Corp., Dept. CUB, 833 W. Jackson Blvd., Chicago 7. (Key No. 399)

### Standardized Boilers

A series of six new standardized water tube boilers in the Springfield Type M line which are especially designed for coal firing with standard stokers but can also be readily adapted to oil or gas firing without any major change in the installation has recently been announced. Sizes ranging from 7500 to 17,000 pounds per hour steam generating capacity are available. All parts are externally supported for simple erection and easy accessibility. Standardization of dimensions for various size units is a feature of the new line. Springfield Boiler Co., Dept. CUB, 1999 E. Capitol Ave., Springfield, Ill. (Key No. 400)

### TR16B Record Player

The Newcomb Model TR16B record player combines the ability to play 45 RPM and 33½ LP microgroove records as well as 33½ broadcast type transcriptions up to 17¼ inches in diameter plus regular 78 RPM standard recordings. The light-weight, portable player has a constant speed rim drive motor with simple speed change lever. The featherweight crystal pick-up employs a semi-permanent, easily replaceable needle of new design. The engineering permits mixing of speech with records or use of each independently. A heavy punched metal grille protects the speaker and the sturdy plywood case is finished in Fabrikoid with metal corners for extra strength. Newcomb Audio Products Co., Dept. CUB, 6824 Lexington Ave., Hollywood 38, Calif. (Key No. 401)

### Toledo Meat Chopper

The new Model 5320 Toledo Meat Chopper is a large-capacity machine designed to produce 30 pounds of clean-chopped meat per minute. A special oversize trap will hold 35 pounds of meat at one time and a safety guard that permits fast feeding protects the feed opening. Although similar to the smaller models, the new machine has modern design and simplified mechanism. The cast aluminum cover is finished with baked enamel in white trimmed in gray and the whole machine is easy to clean. Toledo Scale Co., Dept. CUB, Toledo 12, Ohio. (Key No. 402)

### Tape Recorder

High quality reproduction is a feature of the new model tape recorder recently developed by Magnecord especially for



educational and industrial use. Known as the PT6-JA, the new model conforms to the specifications set forth by the National Association of Broadcasters as their standard for the broadcasting industry. The mechanical unit features high speed forward and rewind, two tape speeds, one for reproduction of music and voice and a faster speed for the best reproduction covering the complete range of human hearing, and simplicity of operation and control. The mechanical unit and amplifier are in separate carrying cases to facilitate handling by teacher or student. Magnecord, Inc., Dept. CUB, 360 N. Michigan Ave., Chicago 1. (Key No. 403)

### Mop Wringer

A small size mop wringer as a companion model to the other wringers in this line, for general purpose cleaning, has recently been announced. Embodying all of the features of the larger Geerpres wringers, the new model is designed to fit any common size of pail or bucket holding 12 quarts or more. The staggered gearing to prevent slip, downward pressure on the mop to prevent splashing, light weight, simple, uniform and fast operation are augmented by rubber grip handle, ribbed pressure plates and electro-plated finish. Known as the No. 816, the wringer is designed to handle any 8 to 16 ounce mop. Geerpres Wringer, Inc., Dept. CUB, Box 658, Muskegon, Mich. (Key No. 404)

### Dated Tumblers

Libbey Heat-Treated tumblers will now be inscribed with the date of manufacture. This innovation is designed to help the user in checking the service of his glassware. The date will appear on the bottom of the glass beside the white etched star with the initials H-T. The single figure on the left of the star indicates the last digit of the year of manufacture, the figure on the right, the quarter. Libbey Glass Co., Dept. CUB, Toledo 1, Ohio. (Key No. 405)

### Calgonite Control

The Calgonite Control is designed to maintain automatically any required concentration of Calgonite compound in washing equipment. The result of intensive field and laboratory work, the control has a variable resistor which permits adjustment of the feed of solution to the wash tank for any soil load or any desired concentration of the washing compound and automatically and continuously measures the strength of the washing solution. The unit operates on 110 V 50-60 cycle alternating current and is wired into the starting switch of the washing machine. It may be operated by a separate switch if the operator prefers. Calgon, Inc., Dept. CUB, 323 Fourth Ave., Pittsburgh 22, Pa. (Key No. 406)

### "Krene" Plastic Draperies

"Krene" plastic is a completely waterproof material which does not mildew, crack, rot or peel. Draperies made of this material are now available and offer attractive practical hangings for faculty rooms, dormitories, reception rooms and elsewhere in the institution. The variety of colors and patterns and the attractive appearance of these draperies make them esthetically satisfying. On the other hand, they are practical and economical, both in original cost and in maintenance, since they can be washed in the laundry or wiped clean at the window, require no ironing and are crush-resistant, flame-resistant and fade-resistant. National Carbon Co., Inc., Dept. CUB, 30 E. 42nd St., New York 17. (Key No. 407)

### Air Recovery Cell

A new, self-contained cell-type unit has been designed to be used in air conditioning and ventilating systems to recover or convert stale, odorous air to fresh air. Known as the Type "C" cell, the unit has a capacity of 1000 cubic feet of air per minute and has been designed to provide a simple, effective air purification device that can be installed and serviced easily. The new cell can be installed with no preliminary engineering design and minimum duct accommodations. For abnormal odor concentrations two cells in series per 1000 CFM are recommended by the manufacturer. W. B. Connor Engineering Corp., Dept. CUB, 114 E. 32nd St., New York 16. (Key No. 408)

### Portable Refrigerator

The Junior Series of "Cargo Reefers" provides portable refrigeration storage facilities where built-in installations are impossible or inadequate. Of completely

welded steel, the reefers are available in 150 and 200 cubic foot sizes and are equipped with self-contained gasoline and electric driven refrigerating units. They are skid-mounted with lifting and towing eyes and can be easily moved if desired.

The units have been designed to permit operation at either zero temperature for storage of frozen foods or at medium temperatures for general refrigerated storage. A separate compartment at the rear of the unit houses the refrigerating system. Reco Products Div., Refrigeration Engineering Corp., Dept. CUB, 2020 Naudain St., Philadelphia 46, Pa. (Key No. 409)

### All-Purpose Stove

The new PyraStove is an all-purpose gas-fired stove providing flexibility, speed, durability and space-saving in one



attractive unit. Field-tested for 18 months, the stove has a new, high-low universal 3 ring burner and a new, efficient combustion and heat distribution system. It offers all speeds from the lowest for the most delicate cookery to high speed for fast or heavy boiling.

The stove is constructed with a 10 gauge steel body, a stainless steel cylinder that directs the heat wash evenly against the fast-heating steel top, 3 continuously welded steel rings with 466 stainless steel parts and separate heat control valves. It is 24 inches high, 22½ inches square, with adjustable legs, ¼ inch machined steel top and 8, 12 and 16 inch openings. The burner, a high speed design, is of the so-called "universal" type, usable with all gases, requiring only an orifice change for high B.t.u. gases. The top, heat distributor, burners, liner and dip tray can be removed from the body of the stove in one minute for easy cleaning. The G. S. Blodgett Co., Inc., Dept. CUB, 50 Lakeside Ave., Burlington, Vt. (Key No. 410)

### Heinz Jellies

A complete new line of Pure Fruit Jellies has been added to the line of Heinz foods. Eight different fruit flavors are available in the new line: currant, grape, elderberry, blackberry, red raspberry, cherry, crabapple and apple. H. J. Heinz Co., Dept. CUB, 1062 Progress St., Pittsburgh 12, Pa. (Key No. 411)

### Amplified Genuine Chime

A new low-cost unit for tower music, the Deagan Amplified Genuine Chime, consists of the Deagan 21-note, 1½ inch diameter model organ chime plus the new Deagan amplification system. The latter includes electronic pick-ups placed between the chimes without touching them at any point; the amplifier, and the tower speakers. The unit is available in 4 different power stages and the amplification system can be easily installed on any Deagan organ chime having twenty-one 1½ inch chimes in the standard Deagan "Inverted-V" arrangement. The amplifier can be installed without removing chimes already installed. J. C. Deagan, Inc., Dept. CUB, 1770 W. Beretton Ave., Chicago 13. (Key No. 412)

### Device to Straighten Metal Posts

A new device has been developed which quickly and simply straightens bent metal posts such as used for school and college fences around grounds and athletic fields, sign posts, pedestal signs and similar posts. Called the Postratner, the device can be operated by one man who can quickly and simply straighten a metal post which has been bent by impact. The device performs at very small cost, according to the manufacturer, is portable and compact, and the only tool required is a bolt wrench. Barber Postratner Co., Dept. CUB, 112 Irvington St., New Haven 13, Conn. (Key No. 413)

### Rauland Phonograph Amplifier

The new Rauland 1825 High-Fidelity Phonograph Amplifier features a detachable remote control preamplifier designed to mount in any position to meet the mechanical requirements of any custom installation. The design of the compact preamplifier unit permits unlimited flexibility. A five-position frequency cut-off eliminates needle scratch and noise. Separate controls provide bass and treble boost and an auxiliary volume control supplements the master control. Other mechanical features ensure excellence of performance. Rauland-Borg Corp., Dept. CUB, 3523 Addison St., Chicago 18. (Key No. 414)

## Product Literature

- A completely new 16 page booklet on "Soap and Soap Equipment" has recently been published by West Disinfecting Co., 42-16 West St., Long Island City 1, N.Y. The booklet describes the various types of soaps available and gives detailed data on newly-designed, modern, functional soap equipment developed to provide economical and efficient dispensing of liquid soaps. Illustrated with both photographs and schematic diagrams, the booklet should be of interest to administrators and maintenance engineers. (Key No. 415)
- The redesigned line of art furniture developed by E. H. Sheldon & Co., Muskegon, Mich., to permit planning and furnishing of art workshops in keeping with modern trends in instruction and practice, is fully described and illustrated in an attractive catalog, "Sheldon Art-Studio Workshop Furniture," recently released. Covering furniture for science, homemaking, shops and art departments, the 48 page catalog begins with a presentation of facts regarding studio-workshops in art and is followed by floor plans for efficient arrangement of art workshops in areas of varying sizes and shapes and specifications on student art tables, drawing tables, benches, work counters, cabinets, sinks, wall cases, display cases, storage cabinets, panels, display boards, chalkboards and shelving assemblies. (Key No. 416)
- Equipment for recirculation, filtration, chlorination, softening and pH control of swimming pools is described in Bulletin No. 2157, "Permutit Swimming Pool Equipment," issued by The Permutit Co., 330 W. 42nd St., New York 18. Manual and automatic valves are explained and the complete line of accessories, such as suction cleaners, heaters and test kits, is described. In addition to full specifications, the bulletin is illustrated with blue prints of equipment as well as photographs and cutaway drawings. (Key No. 417)
- "Build Your New School Now" is the title of an 8 page brochure recently published by the Luria Engineering Corp., Dept. J-8, 500 Fifth Ave., New York 18, as an aid to school administrators, school boards, architects and others concerned with new school construction. The booklet describes how the Luria line of standard, heavy steel-frame structures can be used to cost-saving advantage for any one story school. Drawings and floor plans of six suggested Luria schools, examples of both traditional and modern architectural styles, are presented together with a description of the standard units and optional features which are available. (Key No. 418)
- A new loose-leaf binder containing data on "Hotpoint Commercial Electric Cooking and Baking Equipment" has recently been issued by Hotpoint, Inc., 5600 W. Taylor St., Chicago 44. Full catalog information with specifications and illustrations, as well as floor plans for arranging the equipment, is given in the series of enclosures. The material has been brought up to date and is divided into sections, indicated by thumb tabs, covering each type of electric cooking and baking equipment. (Key No. 419)
- Two new leaflets have been issued by the Maple Flooring Manufacturers Assn., 46 Washington Blvd., Oshkosh 7, Wis., to indicate the possibility of low maple flooring costs without loss of floor quality. Entitled "Where 'Second Grade' Means 'Excellent'" and "Use Third Grade for Economy," the leaflets are designed to tell architects and business managers how quality in flooring can be maintained with savings in costs and the economy and quality of third grade northern hard maple flooring for limited budgets. (Key No. 420)
- "The Tornado Method" is the title of a new manual of floor care published by Breuer Electric Mfg. Co., 5100 Ravenswood Ave., Chicago 40. The 34 page booklet describes the equipment necessary and the steps to be followed with both old and new floors of every type and composition, from preparation through sealing and finishing to maintenance. A Stain Removal Chart supplements the material. (Key No. 421)
- Professor Arthur L. Bigelow, bell-master of Princeton University, has written a book on "Music From the Bellfry—1" devoted to English type "Carillon Bells." The book is devoted to the traditional cast bell, the history of carillon bells, music for this instrument, how to play it, how to arrange music for proper bell use and includes a number of typical arrangements of all kinds. The book is available at \$2 per copy from Schulmerich Electronics, Inc., Sellersville, Pa. (Key No. 422)
- "Hussey Safe Seating" is the title of a booklet recently issued by Hussey Mfg. Co., Inc., North Berwick, Me. A two page spread in the center illustrates and describes the detailed construction of Hussey portable bleachers and complete specifications are given as well as a table of "Dimensions, Weight and Capacity." Institutions now using Hussey equipment are listed. (Key No. 423)
- The full line of Bennett Waste Receptacles featuring non-rusting stainless steel feet is described and illustrated in a new catalog recently issued by The Bennett Mfg. Co., Alden, N. Y. (Key No. 424)
- A new pamphlet published by Remington Rand's Library Bureau, 315 Fourth Ave., New York 10, gives helpful information for librarians, architects and engineers planning to install Multi-Tier Steel Book Stacks. The booklet contains data needed to plan installations and provides tables for estimating weight loads and various area measurements. (Key No. 425)
- The savings in man hours of maintenance time by the use of power sweepers are indicated in a Sweeping Cost-Chart recently published by Wilshire Power Sweeper Co., 4615 Alger St., Los Angeles 26, Calif. Those responsible for maintenance of buildings and grounds will be interested in the facts presented in the comparison chart on manual *versus* power sweeper. (Key No. 426)
- The new edition of the Seal-O-San Basketball Coaches Digest has recently been released by Huntington Laboratories, Inc., Huntington, Ind. The book contains information from 31 leading basketball coaches and trainers who discuss their theories and styles of play used successfully during the 1948-49 basketball season. Liberally illustrated with diagrams and photographs, the 9th edition of this book also has several photo sequences of teams running through intricate plays and shots. The book is available without charge to all coaches and athletic instructors. (Key No. 427)
- A new catalog on Ellison Balanced Doors has been issued by Ellison Bronze Co., Inc., Jamestown, N. Y. Photographs and drawings illustrate the details of these doors as well as many installations. Full descriptive information is supplied together with a list of authorized representatives. (Key No. 428)
- The complete line of stop watches and chronographs for sports, laboratory and industrial use is covered in a new catalog recently issued by Clebar Watch Co., 551 Fifth Ave., New York 17. (Key No. 429)

## Suppliers' News

Changes of address have come to us from the following:

A. B. Dick Co. from 720 W. Jackson Blvd., Chicago 6 to 5700 W. Touhy Ave., Chicago 31.

Huebsch Mfg. Co. from 3744 N. Booth to 3775 N. Holton St., Milwaukee 12, Wis.

The Standard Stoker Co., Inc., Erie, Pa., announces the acquisition of the Chicago Automatic Stoker, a spreader stoker with an adjustable fuel distributor capable of handling a wide range of coal sizes in a stationary power plant. The Chicago Automatic Spreader Stoker is now being made in the company's Erie plant.

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TOMATO  
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# It's the New Wash-Word!



See the small but mighty, fully-automatic Hobart Model UM-P Dishwasher-Glasswasher

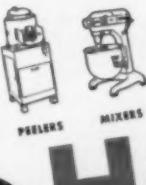
Small, compact, economical and fully-automatic, it's ideal for small restaurants, bars, soda fountains and beverage stands, small diet and ward kitchens, diners and lunch stands, resort hotel and camp kitchens. Save time and money—speed service—reduce breakage and keep help happy. Simply load, close door and press switch. Dishes,

glasses and silverware will be thoroughly washed and rinsed in 3 minutes! Model UM-P comes equipped with combination racks (main illustration) for general use, but can be readily converted into a specialized glasswasher through the use of quickly interchangeable racks (inset above). These are free-standing and built-in models.

Include this versatile labor-saver in your plans for greater efficiency and economy. Your convenient Hobart Representation is always prepared to serve you in your food and kitchen equipment requirements. Ask for details today.

Steakmaker® tenderizers are manufactured by Hobart-Federal Engineering Corporation, a Hobart subsidiary.

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Greenville, Minneapolis, U.S.A. • The World's largest Manufacturer of Food and Kitchen Machines  
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At Dartmouth, practically all of the buildings are equipped, like Dartmouth Hall and Baker Library, with complete systems of Johnson room-by-room Automatic Temperature Control. Johnson is proud of its many years of association with the builders of Dartmouth.

In 22 buildings, which are used for the many and varied college purposes, more than 800 Johnson *Duo-Stat* Room Thermostats assure continuous temperature comfort and fuel economy, day and night.

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